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UNITED STATES DEPARTMENT OF AGRICULTURE
Office of the Secretary

February 23, 1937.

PROCEDURE FOR PRELIMINARY EXAMINATIONS OF WATERSHEDS UNDER THE FLOOD CONTROL ACT
DECEMBER 23, 1936.

Identical letter sent to Dr. Bennett of SCS
and Mr. Silcox of Forest Service.
Nto mimeographed by Committee.

February 26, 1937

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into three stages: (1) preliminary examinations, (2) intensive surveys,
(3) operations. Each stage may well require a particular type of organi-
zation to discharge adequately the responsibilities of the Department of
Agriculture.

MEMORANDUM FOR DR. A. C. BLACK,
Chief, Bureau of Agricultural Economics.

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procedure for this purpose alone is proposed at this time. Experience

The attached plan of procedure for the preliminary examina-
tion of watersheds under the Omnibus Flood Control Act was handed
to me today by Mr. Eisenhower, after being approved, I understand,
by the Advisory and Coordinating Committees.

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mine whether a plan of flood control materially affecting the economy of
many. I am glad to approve the central idea of having field co-
ordinating committees representing the Bureau of Agricultural
Economics, the Forest Service and the Soil Conservation Service,
and functioning on a basis comparable to the Flood Control Coordinat-
ing Committee here in Washington. I think you should get this state-
ment of procedure into the hands of your field personnel as soon as
possible, and ask them to push the work of preliminary examinations
to the full extent of available funds and facilities. As soon as
the money specifically appropriated for this purpose is made avail-
able to the Department it will be allotted to meet the needs of
the various bureaus concerned.

Field Coordinating Committees:

It seems to me that the flood control program presents to
the Department a rather extraordinary opportunity to coordinate
the efforts of Federal, State, and local agencies with those of
thousands of farmers and other landowners. The problem is not one
of techniques and economics alone, but also one involving fundamental
social principles, including new forms of local social control. In
fact, the problem is so comprehensive that we must draw upon the
experience of many of the bureaus of the Department. I know this
experience of coordination will be productive and it may even point
the way to a broader application of this principle throughout the
Department.

5. These Field Coordinating Committees should consist of one
representative of the BAE, FS, and SCS, with consultants from
other bureaus of the Department for Sincerely yours,
of the committees should be headed by Directors of the Bureau
Stations and eleven Committees with /s/ H. A. Wallace

Secretary

(Enclosure)

UNITED STATES DEPARTMENT OF AGRICULTURE
Office of the Secretary
Washington, D.C.

Enclosed letter sent to Dr. Bennett of the
Mr. Slick of Forest Service.
Transmitted by Committee

Dr. Bennett of the
Bureau of Agricultural Research

Dear Doctor Bennett:

The attached plan of procedure for the preliminary examination
of waterbodies under the Control Act was handed
to me today by Dr. Bennett, after being approved, I understand,
by the Advisory and Coordinating Committee.

I am glad to approve the general idea of having this preliminary
examination committee representing the Bureau of Agricultural
Research, the Forest Service and the Soil Conservation Service,
and functioning on a basis comparable to the Flood Control Coordinating
Committee here in Washington. I think you should get this status
of procedure into the hands of your field personnel as soon as
possible, and ask them to push the work of preliminary examination
to the full extent of available funds and facilities. As soon as
the money specifically appropriated for this purpose is made available
to the Department it will be allotted to meet the needs of
the various bureaus concerned.

It seems to me that the flood control program presents to
the Department a rather extraordinary opportunity to coordinate
the efforts of Federal, State, and local agencies with those of
thousands of farmers and other landowners. The problem is not one
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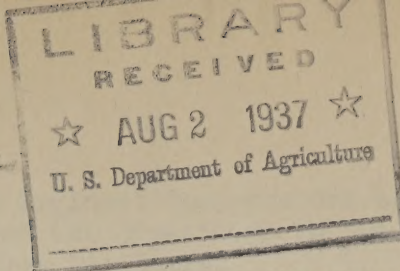
Sincerely yours,

/s/ H. A. Wallace

Secretary

(Enclosure)

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February 23, 1937.

PROCEDURE FOR PRELIMINARY EXAMINATIONS UNDER THE FLOOD CONTROL ACT
OF JUNE 22, 1936.

1. The flood control program as projected by Congress may be divided into three stages: (1) preliminary examinations, (2) intensive surveys, (3) operations. Each stage may well require a particular type of organization to discharge adequately the responsibilities of the Department of Agriculture.

2. The responsibilities of the Department are at present confined to preliminary examinations and surveys. Since appropriations for this year may be largely devoted to preliminary examinations, an organization and procedure for this purpose alone is proposed at this time. Experience will doubtless dictate the best type of organization for the other phases of the program.

3. A preliminary examination must be thorough and comprehensive to determine whether a plan of flood control materially affecting the economy of many communities is socially warranted and technically feasible. The field of these examinations has not the precise limits and traditional technics of engineering practice. Each watershed -- and many cover vast areas -- will present a complex of natural, economic, social, and political problems which will require for their consideration the collaboration of a number of agencies, and the correlation of information from many sources. This is a staff function. It is a function that can best be carried out through a common counsel of representatives of the bureaus of major interest in the development of a flood control program.

Field Coordinating Committees:

4. It is suggested that Field Coordinating Committees be established in order to draw to the fullest extent upon the field knowledge of the Department. In this, it is proposed to take full advantage of the present regional organizations of the Forest Service and the Soil Conservation Service including staff personnel, equipment, and facilities at New Haven, Williamsport, Philadelphia, Asheville, Spartanburg, Columbus, Dayton, St. Paul, Rapid City, Des Moines, Salina, New Orleans, Fort Worth, Amarillo, Fort Collins, Albuquerque, Tucson, Ogden, Missoula, Spokane, Portland, Santa Paula, and Berkeley.

5. These Field Coordinating Committees should consist of three members representative of the BAE, FS, and SCS, with consultants available from other bureaus of the Department for special services as needed. Twelve of the committees should be headed by Directors of the Forest Experiment Stations and eleven Committees with Regional Conservators as chairmen.

These Directors and Regional Conservators are now serving as liaison officers to represent the Department in the conduct of public hearings with the Army District Engineers.

6. Generally speaking, the committees headed by the representatives of the Forest Service as chairmen have been assigned watersheds falling within the following geographic groups: New England, Upper Mississippi and Lake States, Northern Rockies, Columbia Basin, and California. Here, in addition to the Forest Experiment Station staffs, the National Forest personnel can be drawn upon. Similarly, the watersheds assigned to Committees headed by the Soil Conservation Service fall within the North Atlantic, Piedmont, Ohio Basin, Great Plains, West Gulf, and Colorado Basin groups, where large-scale soil conservation demonstration projects are underway and where there are a number of Soil Conservation Experiment Stations. Here, too, personnel and equipment may be drawn upon.

Duties of the Field Coordinating Committees:

7. It will be the primary duty of the Field Committees to coordinate the flood control interests of the Department as related to the preliminary examinations for their particular group of watersheds. The Committee will be responsible for submitting a joint report for each of the watersheds assigned for preliminary examination. The members should determine in conference the respective parts of the report each bureau or agency should independently prepare. They should integrate their work to prevent overlapping, duplication, or omissions. The report and its conclusions should be subscribed to by each member of the committee; in this respect all are charged with equal responsibility. It is expected that differences of opinion will be reconciled in the field; if this is not possible a minority report may accompany the report of the majority.

8. The chairman of the Committee will be responsible for the integration of the material submitted for inclusion in the report, and for its submission within reasonable time. He will represent the Field Committee in local relations with consultants of other bureaus assigned to assist in the preparation of the report; he will also deal directly with the District Engineers of the Army. The chairman will receive instructions from his Bureau to undertake these duties.

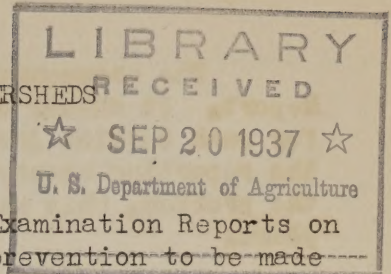
Routing and Action on Reports:

9. The preliminary watershed report as submitted will be considered a report of a local committee of the Department. The chairman of the Field Coordinating Committee will submit an original and five copies of the report to the Chief of his Bureau. The original will be retained by the Bureau Chief for critical review; the other copies, after preliminary review by the Bureau, will be transmitted to the Coordinating Committee for distribution and the critical review of the other two Bureaus

represented on the Field Committee. Copies of the report may also be sent by the Coordinating Committee to other bureaus of the Department if the subject matter is of particular interest to them. Upon the approval of the participating bureaus, and upon receipt of the opinions of any other bureau chiefs, to whom the report has been submitted, the Coordinating Committee will discuss the report before taking final action. The liaison representatives of the several bureaus will be invited to participate in this discussion. The Coordinating Committee will thereupon prepare the final report and recommendations for the action of the Advisory Committee and the Secretary, and for the information of the War Department and Congress.

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February 25, 1937.

INSTRUCTIONS FOR PREPARING
PRELIMINARY EXAMINATION REPORTS ON WATERSHEDS



Attached is the outline for the Preliminary Examination Reports on run-off and waterflow retardation and soil erosion ~~prevention to be made~~ on the watersheds mentioned in the Flood Control Act of June 22, 1936. This report is to be prepared cooperatively by the field representatives of the various Bureaus designated to assist in its preparation. It will, therefore, be a joint report.

A Preliminary Examination of a watershed is to obtain certain basic facts by which to determine whether a detailed survey to develop a specific flood control program from the standpoint of run-off and waterflow retardation and soil erosion prevention in the area is justified. If such a program appears technically sound and economically feasible, a Detailed Survey will be made. This Detailed Survey, in contrast with the preliminary examination, will determine and develop the specific program or form of action to be taken, and the report upon it will outline the detailed methods to be used, and will present detailed estimates of the cost of this program.

Field Organization for Reports

Regional Field Coordinating committees are being organized to prepare the "Preliminary Examination Reports". These are to be composed of representatives of the three Bureaus of the Department having major responsibilities in flood control (Bureau of Agricultural Economics, Forest Service, and Soil Conservation Service.) Chairmen of these committees will be members of the two latter agencies in accordance with their assigned responsibilities for individual watersheds. (11 Regional Conservators and 12 Directors of Regional Forest Experiment Stations). Representatives of other Bureaus will be named as consultants for fields of work in which their Bureaus have responsibilities.

These Field Committees are to coordinate the flood control interests of the Department as related to the preliminary examinations for the particular group of watersheds for which they have responsibilities, and are to prepare the preliminary reports. The members should agree in conference as to the part or parts of the Outline they will independently prepare, and otherwise so integrate their work as to prevent conflicts or overlapping. The committee should also agree in conference upon the section of the report dealing with "Recommendations." In case of major disagreement, a minority report may be prepared.

The chairman of the Field Coordinating Committee is to be responsible for the integration of material and the submission of the report. In most cases, the final draft of the report will be done in his office. The chairman will represent the Department in local relations with other agencies and act as a liaison where the work of other Bureaus is concerned.

(Over)

Outline for Preliminary Reports

The accompanying outline has been prepared for the Preliminary Report. It should be followed in detail. An effort has been made to show for each section just what is wanted, and how it should be presented. If the reporting agency has other pertinent data or information bearing on the problem, this material can be inserted in the report in its appropriate place.

You will note that in the main the outline asks for:

- I. A description of the area.
- II. The land economy of the watershed.
- III. Hydrologic information
- IV. Flood history
- V. Damages caused by floods and erosion
- VI. Remedial measures
- VII. Benefits
- VIII. Recommendations
- IX. Cooperation

Special attention is directed to Sections V, VI, and VII. These sections are perhaps more fundamental to the report than the others, largely because they supply the basis for the specific action recommended in VIII.

It is believed that much of the data requested will be generally available in various field offices of the Department, in the offices of other Federal Departments especially the Army Engineers, from State and other local public agencies, and from private sources. A considerable part of the data on land use and economy will be available in Census reports. Some data on floods, precipitation, erosion, etc., are in published form and need only compilation in the form requested.

Data used by the Army Engineers and by the Department of Agriculture should be the same, as comparable reports will go to Congress, hence close cooperation with the District Engineer concerned is necessary. Some data will have to be collected through public hearings, and this fact should be borne in mind when preparing the questionnaire announcing the public hearings for a given watershed.

Watershed area data from various sources are being compiled. Where "official" source information is not available, base maps are being planimetered. These area data will be sent to the field agencies. They should be used unless better data are available locally. In such cases, give source of data and reasons for belief in its superiority.

Outline maps of the watersheds are being prepared and prints will be furnished. The "standard size" maps for filing will be the "Atlas" size. The "Standard scale" is 1:500,000. Outline maps of watersheds to this scale will be prepared here but in Atlas size. For some of the larger rivers, this will require a series of tracings. State maps to this scale can be obtained from the Soil Conservation Service or the Forest Service if not obtainable locally.

Confidential Nature of Report

The Preliminary Report and especially the Recommendations should be kept confidential, except for the Army Engineers. This will prevent pressure being brought upon the Department or action being taken to set aside the recommendations of the Department. There is no reason why the recommendations may not be discussed with the local District Engineer before the report is submitted.

Omissions from Reports

Estimates of cost of surveys or detailed estimates of costs of suggested programs should not be included in the preliminary examination report. Such estimates should be submitted in a separate memorandum accompanying the report in which should be given (a) the estimated cost of the survey recommended, (b) the length of time which such a survey will require, (c) information as to the character and extent of data to be obtained in such surveys, and (d) an indication of the methods recommended for use in making the detailed survey. The omission of these estimates from the report is necessary in order to safeguard the Department from being held to specific amounts for projects or detailed surveys as such estimates can be approximate only and therefore subject to considerable error.

Based on surveys for similar purposes, the over-all approximate costs for surveys for somewhat similar purposes amounted to about 20 cents an acre for the area surveys. Because of local difficulties, however, costs for the detailed surveys of watersheds probably will be much less than this.

No specific detailed plan of improvement or remedial measure or detailed cost estimates of any such specific project or plan should be incorporated in the preliminary report. Such plans and cost should be mentioned only in a most general way as they belong in the Detailed Survey report. However, as some knowledge of a specific plan for and approximate cost of such detailed measures may be of great value to the reviewing authorities in passing upon a report, any such detailed plans and cost estimates should be forwarded in a second memorandum accompanying and attached to the report. Any such estimates should be related specifically to the proper sections of the report in such manner that reviewing officers can relate such material to the proper place in the accompanying text.

Form of Report

Every effort should be made to make the report as brief as possible. To this end, keep the discussion to a minimum; use maps wherever possible to show the location of conditions, etc.; present data in tabular or graphic form where possible; make exposition clear; omit narrative; give facts as specifically as possible; omit lengthy discussion if the material has been compiled and published in some readily available form. Where reference is made to published sources, be sure to make proper footnote reference in the text. It is believed that a preliminary report for an average watershed should not run much over 20 typewritten pages, exclusive of tables, maps, illustrations, etc., though no limit is set for any report on any watershed.

The problem of the authors in preparing a preliminary report will be to make the discussion complete but short, and to include only enough data to support the recommendations for or against a Detailed Survey in all or part of the watershed. This will require careful balance in not collecting more information or in presenting factual data in greater detail than is needed to complete the report in the time available. Consequently discussions should be brief, sharp, and to the point.

Small scale maps (reductions to letter size) will be furnished for inclusion with the report, but where data cannot be adequately shown on such small scale maps, the atlas-sized maps should be folded into the report. Colors rather than crosshachures should be used.

Reports may be illustrated with photographs if desired.

Reports should be prepared on letter-sized paper, binding at the left edge. Reports should be bound in "Accobind Folders" using binding posts instead of tin fasteners for bulky reports.

The original and five copies of the report will be submitted by the Chairman of the Field Committee to the Chief of his Bureau. Each copy will have attached the separate memoranda as indicated in the paragraphs on "Omission from Reports".

Use the title page as given. Names of Bureaus will be typed on cover page, with signatures of the approving Field Flood Control Coordinating Committee members responsible for the report. The report will be dated.

Include as the Introduction, the exact form of the statement given in the outline.

Use the same topical headings in report as given in outline. Insert proper subject headings even though there may be no discussion or information under the heading.

Paragraphs should be numbered consecutively throughout the report without reference to sections.

(USE COVER PAGE AS GIVEN BELOW)

PRELIMINARY EXAMINATION REPORT

Run-off and Waterflow Retardation and Soil Erosion Prevention

(Name of watershed as given in Act)

In compliance with

Section 6 of the Flood Control Act, June 22, 1936

Public No. 738 -- 74th Congress

FIELD FLOOD CONTROL COORDINATING COMMITTEE

(Chairman)

(Service)

UNITED STATES DEPARTMENT OF AGRICULTURE

(Date)

PRELIMINARY EXAMINATION REPORT
ON
RUN-OFF AND WATERFLOW RETARDATION AND SOIL EROSION PREVENTION
Flood Control Act. June 22, 1936.

(Authority: Insert here in the report, the following paragraph. This paragraph is to be used as the introduction for each and every report. Insert the name of the watershed as given in the Flood Control Act of 1936).

Introduction

Authority: This report of preliminary examinations is made in compliance with the Flood Control Act of June 22, 1936, (Public No. 738 - 74th Congress), as follows:

"Section 6 *** The Secretary of Agriculture is authorized and directed to cause preliminary examinations and surveys for run-off and waterflow retardation and soil erosion prevention on the watersheds of ***.

"

- I. Description of area. (Very brief and generalized discussion of the major features of watershed having a bearing on the problem. When possible give information in map or tabular form and avoid written discussion.)
 - A. Location and size: General location. (Outline maps of standard size are being prepared.) Size of watershed, and, where area is large, of primary tributaries. Present data in tabular form.
 - B. Brief description of area with reference to relief, slope, elevation differences, and other similar factors bearing upon the water and erosion problems and their control. Use outline maps to show essential features.
 - C. Geology and Soils: (Very brief generalized discussion with data in tabular and map form wherever possible. Omit discussion not directly pertinent to soil-water relationships.)
 1. Geology: Geologic and physiographic provinces, etc. If watershed is included in several provinces, indicate approximate area in each and show location on map. Particular reference should be made to the relation of the geologic strata to run-off and underground storage capacity.
 2. Soil: Classify by broad groups. Discuss briefly characteristics having special bearing on run-off or erosion such as depth, texture, fertility, nature of sub-soil, etc. Show location on map if possible.
 3. Results of investigations. (soil-water relationships including absorption, run-off, erodibility, etc.) (Summary form only.) Include character of soil and cover conditions, and other essential data which will aid in evaluating results. If data are presented from outside the drainage area, show applicability to conditions in watershed. Present data in tabular or graphic form where possible. Give sources of information.
 4. Drainage of Swamps, lowlands, etc. Effect on run-off, etc. If large areas have been drained, show location on map.

- D. Drainage: Information with reference to general character of the stream (width, depth, gradient, behavior, etc.) and its principal tributaries and of the valleys through which they flow, etc. Also the characteristics of minor streams and of their valleys, etc.
 - E. History of watershed: Brief discussion of original conditions in watershed and subsequent development. Show bearing of change in cover and land use on flood and erosion problems.
 - F. Population: approximate number and general distribution, as to urban, rural, farm. Tabulate and show general distribution on maps where possible. (Census data) Indicate separately, population directly affected by "average" and "extreme" floods.
- II. Land Economy: (The purpose of this section is to present a general picture of the economy of the area as it relates to the use and misuse of land, particularly those elements which are important in presenting a background for later discussion of damages from excessive run-off and erosion, and of the benefits obtainable from suggested control measures. Data should be obtained largely from Census and other secondary sources.)
- A. Present use of land: Give approximate percentage of area in different classes of use or cover conditions (natural and cultivated) including a breakdown of crop land into soil protecting crops (such as grass or close growing crops, etc.) in contrast with other crops which may not be soil protecting (cotton, tobacco, etc. etc.) Show trends in land use. Where possible, use maps to show locations, etc.
 - B. Land ownership: Give approximate percentages in different classes of ownership (Federal, state, other public, private, farm tenancy, etc.). Also give major reservations. Indicate also trends in ownership. Where large areas in one type or condition of ownership are involved maps may show character, location, and extent. In large watersheds it may be advisable to show data by major subdivisions, either physical or political.
 - C. Farm economy: Size of farms, type of farm (irrigation, dry farming, etc.) value and income. Give also information on taxation and tax delinquency where available. Show trends. Much of this information can be presented in both tabular and map form. In large watersheds, it may be advisable to show data by major subdivisions, either physical or political.
 - D. Wild land economy (forest, brush, and range): Size and character of ownership, value, income, etc., for different kinds and character of cover conditions. Also give information where available on taxation and tax delinquency. Show trends. In large watersheds, it may be advisable to show data by major subdivisions, either physical or political.

III. Hydrologic data: (This section requires only a very brief discussion, with data in map, tabular, or diagramatic form where possible. Bring out essential facts bearing on water and erosion problems. Also bring out essential differences, if any, in records in different parts of watershed due to location of gauges and the application of these variations to the watershed. Give indication of reliability and value of available records, etc. Some Army Engineer reports contain data that should be used in these reports.)

A. Meteorological: Discussion for both main stream and major tributaries if needed. Give data in tabular or graphic form where possible. In some sections, the Army has already compiled much of this material in usable form.

1. Rainfall: Show location of gauges. (Differentiate between "standard", recording, and other types of gauges).
 - a. Amounts: Daily, monthly, annual. (Include also extremes in annual records or for flood periods).
 - b. Character and frequency of storms: particularly those with important bearing on run-off and erosion conditions.
 - c. Intensity of rainfall: especially in different parts of the watershed.
2. Snowfall:
 - a. Amount and general distribution (effect of altitude, slope, etc.) Show location of snow surveys on map and give information as to agency or agencies conducting such surveys and period covered.
 - b. Snow melt; rate, season, absorption during winter, etc.
3. Frozen ground; data on normal depths and approximate duration of frozen condition, especially in its relation to spring floods. Data on freezing in swamps, forests, pastures, and open land, especially desired where obtainable.

B. Stream flow: (Discussion not only for main streams but also separately for important tributaries where conditions justify and where data are available. General discussion: Bring out differences, if any, in different portions of watershed, indication of the reliability of the records, etc. Show location of gauges. Give data in tabular or diagram form where possible. Data will be largely available from Army, Weather Bureau, Bureau of Agricultural Engineering, or Geological Survey. Some will develop in public hearings, etc. Give reference to source.)

1. Discharge (annual, monthly, and during flood and storm periods).

2. Magnitude and frequency of floods and peak flows: seasons of occurrence.
 - a. Maximum discharges, frequencies, flash or gradual, seasons, etc. (Extremes and normal flood heights.)
 - b. Probabilities of extreme floods.
 3. Stream behavior generally: Fluctuations in stream: Minimum flows and duration of extreme low water flows. Give data in tabular or graphic form if possible.
 4. Ground water conditions: Rising or falling of well levels, etc., and causes such as increased draft for irrigation, decreased or increased absorption, etc. Cite specific cases if readily available.
 5. Turbidity: Brief discussion of silt content at different stream stages, etc.
- IV. Floods: (This section is to give background for determining how often damaging floods occur and kind of lands flooded.)
- A. Flood History: Give history in tabular form. Indicate extent (and location) of flooded areas and whether inundated at annual, periodic, or rare intervals.
 - B. Causes of floods: include condition of watershed at time of floods (snow, frozen ground, excessive rains, saturated soil, etc.) Cite illustrations from specific floods.
 - C. Condition of channels: (blocked by debris, log or ice jams at time of flood.)
 - D. Relation between floods and land use and cover conditions: Brief discussion; include influence of recurrent floods on land use, cover and population.
 - E. Effect of stream improvements (reservoirs, etc.) on flood control. Show location on map.
- V. Problems of damage: Specific problems of the watershed which help to evaluate the losses due to floods, irregular waterflow, and erosion. Be as specific as the information permits and assign money values wherever possible. Keep discussion to a minimum. Present data in map and tabular form. It should be kept in mind that the data on damages must be adequately correlated with the data of the Army Engineers and basic data on the same watershed by the Department must not disagree with those presented by the Army.
- A. Damage by floods, high water, and excessive run-off.

1. Damage to crops, agricultural lands, pastures and forests: show separately best approximations of losses possible, give location of inundated lands involved, depths to which normally or exceptionally flooded, duration of inundation, reduction in values, etc. Bear in mind that the season and duration of inundation may affect damages.
 2. Damage to municipal and industrial property (Much of this information can be obtained from the Army Engineers, Weather Bureau, etc.) Show separately for structures, contents, equipment, and estimated value of lost business during restoration.
 3. Damage to bridges, railways, highways, communication lines (See note under "2" above). (Damage to interruption of commerce should be also included here, but damage to navigable waters through sedimentation should be covered in "V, B, 5.")
 4. Damage to other property and improvements (See note under "2". The agricultural representatives should endeavor especially to collect data on damages in rural sections and to rural improvements.) Separate as to structures, contents, equipment, etc.
 5. Damage to livestock and wildlife.
 6. Intangibles: Included here may be loss of time due to moving because of floods, loss of markets or marketability of produce, replacement of farm machinery, pumping of cellars, sickness and epidemics as an aftermath of floods, insect epidemics attacking man and livestock, damage to recreation possibilities, etc.
 7. Loss of life.
 8. Summary of damages by water. Present in tabular form.
- B. Damage by erosion: (all types) (Express losses in terms of value wherever possible.)
1. Erosion conditions: Extent; type; where prevalent; correlation of erosion with soil, topography, cover conditions and land use. Brief discussion of conditions as revealed by previous general surveys. Where data are known to be inadequate, some "reconnaissance conservation surveys" will be needed. Show data on map. Damage in a lower portion of a main stream or harbor (outside the watershed) caused by erosion of land within the watershed under discussion should also be included.
 2. Damage to land through removal of soil (express in both physical and economic terms). Include area lost through bank erosion. Give evidence, if available, where, as a result of erosion, there has been decreased land values, and decreased production due to impoverishment of site and consequent decreased income to farmers.

3. Damage from deposition of eroded materials on land (expressed in physical and economic terms).. Include here also tangible damage to roads, from landslides, etc.
 4. Damage from sedimentation: Channels, irrigation ditches, lakes, and reservoirs; cost of dredging especially for navigation; reduction in irrigation, power and flood-control value of improvements because of shortened life or decreased efficiency due to sedimentation, etc. Include damage to navigation.
 5. Intangibles; such as decreased social aspects of community and individual family life; etc.
- C. Damage to water supplies.
1. Reduction in ground water levels because of high run-off and decreased absorption and increased costs due to deepening wells, deeper pumping, changes in crop produced, etc. (Consider also the possibility of future needs for increased municipal and industrial water supplies within the watershed or in adjacent areas if affected.)
 2. Decreased summer flows because of increased run-off and decreased absorption, and increased costs caused thereby. This may include also cost due to irregular flow, losses due to water shortages (agriculture, industry, domestic), etc.
 3. Pollution of water supplies through turbidity caused by erosion and increased costs caused thereby, such as to municipalities and manufacturing plants, in desilting water supplies; etc. (Omit pollution due to industrial and other wastes.)
- D. Damage to wildlife: Discuss in relation to fish as well as to other forms of wildlife. Assign values if possible.
- E. Damage by insects associated with floods: Discuss briefly with reference to flood water mosquitoes, buffalo knats, blackflies, or crop-destroying insects attributable to floods.
- F. Other land-use problems: Discuss any special problems related to or arising from flood and erosion damage peculiar to the watershed which may have been omitted elsewhere in this section. This may include such things as reduced standards of living, tendency towards tenant farming, increased mortgage indebtedness of property, increased indebtedness of local governments, etc.
- G. Summary of all damages. (A to F inclusive.) Tabular form if possible.
- VI. Remedial measures: (Give suggestions as to general measures and action which might be used to retard run-off and to correct erosion and flood conditions. Discuss briefly and in general; give suggestions for cropland, grassland, and forest separately. Give data in tabular form

where possible, and if information permits, also show location of major areas involved in map form. It is to be noted that only generalized ideas are wanted here; detailed surveys will determine the specific program and measures needed, their location, and cost.)

- A. Flood and erosion measures, both vegetative and mechanical, already in effect or practiced in the watershed. Describe briefly and indicate relative degree of effectiveness and use.
- B. Changes in land use: (applies primarily to major change from crops to pasture or to forest. Give approximate areas to which suggested changes might apply, indicate character of changed use, and an approximation of the cost per acre. Put in tabular form and if data permit, show location on maps.
- C. Changes in land management methods: applies primarily to possible changes in crops, in methods, or in cover conditions. Give separately for crops, pasture, swamps, forests, etc., showing briefly, for example, what changes can be brought about in density of cover, as through reseeding, reforestation, or through protection (fire, insects, disease, overgrazing), etc. If data permit, show location of areas which may be involved. Give some estimation of cost per acre and an indication of the extent costs should be charged to public flood control.
- D. Changes in ownership: (especially as from private to public, etc.) Give approximate acreage of areas in which major changes might be accomplished; show location in map form. Give estimated value per acre of lands involved. If areas should be retired from private ownership, indicate character of land, approximate area, and possible character of future use.
- E. Engineering devices: Applies both to engineering measures taken on land (terraces and other devices on slopes) and to various types of small dams and devices installed in stream channels, drainage ditches, etc. (Major structures and devices within the field of the Army Engineers should be excluded from this discussion.) Show location of areas on which measures on land will be needed, and tributaries on which devices in streams will be needed.
- F. Any other suggested measures:

VII. Benefits: (Consequences resulting from the application of the suggested Remedial Measures: This section is designed to bring out the essential benefits of water-retardation and erosion control works given in Section V above. It should give broad estimates, for each of the subject headings below, in both qualitative and quantitative form unless, as a result of previous work, specific information is available. Because of its importance, this section should be carefully prepared.)

- A. Water conservation: Approximations as to the extent to which water may be conserved in watershed, ground water supplies replenished, and dry period or summer flow increased, etc.

- B. Soil conservation: Extent to which soil will be conserved in place.
- C. Deposition correction: Extent to which sedimentation and deposition on lands and in stream channels, reservoirs, etc., will be prevented.
- D. Wildlife benefits: Extent to which remedial measures will benefit wildlife.
- E. Sanitation: Extent to which sanitary and health conditions will be improved, including relief from insect scourages.
- F. Extent to which damages of all kinds (See Section V) will be reduced.
- G. Economic and social consequences of remedial measures. (These consequences may be beneficial nationally or on a State and regional basis; but be detrimental in small political units or watersheds.)
 - 1. Enhanced value of property. (Brief discussion of the economic consequences of changes in land use).
 - 2. Changes in population.
 - 3. Change in type of farming and income.
 - 4. Changes in public finance: (including effect on taxation and public expenditures).
 - 5. Other changes.
- H. Total benefits: A general summary: Brief, concise, and to the point. Give data in tabular form. Separate if possible the public benefits from those accruing to the personal profit of private individuals, etc., and under public benefits, give indication of percentage of cost which might be a direct charge against flood control in contrast with other charges in the general public interest. An effort should be made also to translate qualitative benefits into quantitative values that can be balanced against money costs. Indicate extent to which Federal aid or direct Federal action seems justified because of interstate values, of impairment to national resources, etc.

VIII. Recommendations: Specific recommendations as to whether by means of a detailed survey of the Watershed, there is a reasonable possibility of developing a technically sound and feasible program of water-retardation, erosion-prevention, and flood-control in the watershed at a cost commensurate with estimated benefits. Give reasons for conclusion. These recommendations may apply either to the watershed as a whole or to those portions of the watershed where the problems

may be especially acute or where there is a real opportunity to perform some worthwhile service. If favorable to a survey, indicate kind of Detailed Survey required.

Some portions of the watershed may not need a Detailed Survey but needs can be met by a partial survey; indicate briefly those portions where detailed partial surveys may be needed. Give indication of time required. Should results of various previous surveys by the Department be available show how they will aid in the recommended Detailed Survey; give agency making survey, type of survey made, acreage covered, location, and value. List especially any aerial surveys.

If the evidence justifies the judgment locally that an unfavorable report on the need for a Detailed Survey is to be made, the whole report probably can be somewhat shorter than this outline indicates. Specific and valid reasons, however, must be advanced to justify the conclusions reached as unfavorable reports will be transmitted to Congress.

- IX. Cooperation: Indicate briefly the possibility and probable extent of cooperation from various Federal, State, and local governments; and from private individuals, corporations, associations, etc. in detailed surveys if later carried out, or in the application of measures for the control of run-off and erosion. If there are any State acts which specifically provide for Federal cooperation in measures of flood control including conservation of soils and forests give reference and digest. State if any major Federal project of cooperation underway such as Soil Conservation Service demonstration project, etc. etc.

Appendix:

- A. Bibliography of Source material; include manuscripts.
- B. Maps of watershed available: For each watershed indicate character of data shown. Indicate suitability for use in the Detailed Survey; date, scale, probable accuracy, usefulness, etc.
- C. Federal and State agencies consulted.
- D. Organizations and individuals consulted.
- E. List of hearings, giving dates, attendance at each and, if important facts were developed, a very brief indication of such facts.

February 23, 1937.

PROCEDURE FOR PRELIMINARY EXAMINATIONS UNDER THE FLOOD CONTROL ACT
OF JUNE 22, 1936.

1. The flood control program as projected by Congress may be divided into three stages: (1) preliminary examinations, (2) intensive surveys, (3) operations. Each stage may well require a particular type of organization to discharge adequately the responsibilities of the Department of Agriculture.
2. The responsibilities of the Department are at present confined to preliminary examinations and surveys. Since appropriations for this year may be largely devoted to preliminary examinations, an organization and procedure for this purpose alone is proposed at this time. Experience will doubtless dictate the best type of organization for the other phases of the program.
3. A preliminary examination must be thorough and comprehensive to determine whether a plan of flood control materially affecting the economy of many communities is socially warranted and technically feasible. The field of these examinations has not the precise limits and traditional technics of engineering practice. Each watershed -- and many cover vast areas -- will present a complex of natural, economic, social, and political problems which will require for their consideration the collaboration of a number of agencies, and the correlation of information from many sources. This is a staff function. It is a function that can best be carried out through a common counsel of representatives of the bureaus of major interest in the development of a flood control program.

Field Coordinating Committees:

4. It is suggested that Field Coordinating Committees be established in order to draw to the fullest extent upon the field knowledge of the Department. In this, it is proposed to take full advantage of the present regional organizations of the Forest Service and the Soil Conservation Service including staff personnel, equipment, and facilities at New Haven, Williamsport, Philadelphia, Asheville, Spartanburg, Columbus, Dayton, St. Paul, Rapid City, Des Moines, Salina, New Orleans, Fort Worth, Amarillo, Fort Collins, Albuquerque, Tucson, Ogden, Missoula, Spokane, Portland, Santa Paula, and Berkeley.
5. These Field Coordinating Committees should consist of three members representative of the BAE, FS, and SCS, with consultants available from other bureaus of the Department for special services as needed. Twelve of the committees should be headed by Directors of the Forest Experiment Stations and eleven Committees with Regional Conservators as chairmen.

These Directors and Regional Conservators are now serving as liaison officers to represent the Department in the conduct of public hearings with the Army District Engineers.

6. Generally speaking, the committees headed by the representatives of the Forest Service as chairmen have been assigned watersheds falling within the following geographic groups: New England, Upper Mississippi and Lake States, Northern Rockies, Columbia Basin, and California. Here, in addition to the Forest Experiment Station staffs, the National Forest personnel can be drawn upon. Similarly, the watersheds assigned to Committees headed by the Soil Conservation Service fall within the North Atlantic, Piedmont, Ohio Basin, Great Plains, West Gulf, and Colorado Basin groups, where large-scale soil conservation demonstration projects are underway and where there are a number of Soil Conservation Experiment Stations. Here, too, personnel and equipment may be drawn upon.

Duties of the Field Coordinating Committees:

7. It will be the primary duty of the Field Committees to coordinate the flood control interests of the Department as related to the preliminary examinations for their particular group of watersheds. The Committee will be responsible for submitting a joint report for each of the watersheds assigned for preliminary examination. The members should determine in conference the respective parts of the report each bureau or agency should independently prepare. They should integrate their work to prevent overlapping, duplication, or omissions. The report and its conclusions should be subscribed to by each member of the committee; in this respect all are charged with equal responsibility. It is expected that differences of opinion will be reconciled in the field; if this is not possible a minority report may accompany the report of the majority.

8. The chairman of the Committee will be responsible for the integration of the material submitted for inclusion in the report, and for its submission within reasonable time. He will represent the Field Committee in local relations with consultants of other bureaus assigned to assist in the preparation of the report; he will also deal directly with the District Engineers of the Army. The chairman will receive instructions from his Bureau to undertake these duties.

Routing and Action on Reports:

9. The preliminary watershed report as submitted will be considered a report of a local committee of the Department. The chairman of the Field Coordinating Committee will submit an original and five copies of the report to the Chief of his Bureau. The original will be retained by the Bureau Chief for critical review; the other copies, after preliminary review by the Bureau, will be transmitted to the Coordinating Committee for distribution and the critical review of the other two Bureaus

represented on the Field Committee. Copies of the report may also be sent by the Coordinating Committee to other bureaus of the Department if the subject matter is of particular interest to them. Upon the approval of the participating bureaus, and upon receipt of the opinions of any other bureau chiefs, to whom the report has been submitted, the Coordinating Committee will discuss the report before taking final action. The liaison representatives of the several bureaus will be invited to participate in this discussion. The Coordinating Committee will thereupon prepare the final report and recommendations for the action of the Advisory Committee and the Secretary, and for the information of the War Department and Congress.

(Absolute)
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February 25, 1937.

INSTRUCTIONS FOR PREPARING
PRELIMINARY EXAMINATION REPORTS ON WATERSHEDS

Attached is the outline for the Preliminary Examination Reports on run-off and waterflow retardation and soil erosion prevention to be made on the watersheds mentioned in the Flood Control Act of June 22, 1936. This report is to be prepared cooperatively by the field representatives of the various Bureaus designated to assist in its preparation. It will, therefore, be a joint report.

A Preliminary Examination of a watershed is to obtain certain basic facts by which to determine whether a detailed survey to develop a specific flood control program from the standpoint of run-off and waterflow retardation and soil erosion prevention in the area is justified. If such a program appears technically sound and economically feasible, a Detailed Survey will be made. This Detailed Survey, in contrast with the preliminary examination, will determine and develop the specific program or form of action to be taken, and the report upon it will outline the detailed methods to be used, and will present detailed estimates of the cost of this program.

Field Organization for Reports

Regional Field Coordinating committees are being organized to prepare the "Preliminary Examination Reports". These are to be composed of representatives of the three Bureaus of the Department having major responsibilities in flood control (Bureau of Agricultural Economics, Forest Service, and Soil Conservation Service.) Chairmen of these committees will be members of the two latter agencies in accordance with their assigned responsibilities for individual watersheds. (11 Regional Conservators and 12 Directors of Regional Forest Experiment Stations). Representatives of other Bureaus will be named as consultants for fields of work in which their Bureaus have responsibilities.

These Field Committees are to coordinate the flood control interests of the Department as related to the preliminary examinations for the particular group of watersheds for which they have responsibilities, and are to prepare the preliminary reports. The members should agree in conference as to the part or parts of the Outline they will independently prepare, and otherwise so integrate their work as to prevent conflicts or overlapping. The committee should also agree in conference upon the section of the report dealing with "Recommendations." In case of major disagreement, a minority report may be prepared.

The chairman of the Field Coordinating Committee is to be responsible for the integration of material and the submission of the report. In most cases, the final draft of the report will be done in his office. The chairman will represent the Department in local relations with other agencies and act as a liaison where the work of other Bureaus is concerned.

(Over)

Outline for Preliminary Reports

The accompanying outline has been prepared for the Preliminary Report. It should be followed in detail. An effort has been made to show for each section just what is wanted, and how it should be presented. If the reporting agency has other pertinent data or information bearing on the problem, this material can be inserted in the report in its appropriate place.

You will note that in the main the outline asks for:

- I. A description of the area.
- II. The land economy of the watershed.
- III. Hydrologic information
- IV. Flood history
- V. Damages caused by floods and erosion
- VI. Remedial measures
- VII. Benefits
- VIII. Recommendations
- IX. Cooperation

Special attention is directed to Sections V, VI, and VII. These sections are perhaps more fundamental to the report than the others, largely because they supply the basis for the specific action recommended in VIII.

It is believed that much of the data requested will be generally available in various field offices of the Department, in the offices of other Federal Departments especially the Army Engineers, from State and other local public agencies, and from private sources. A considerable part of the data on land use and economy will be available in Census reports. Some data on floods, precipitation, erosion, etc., are in published form and need only compilation in the form requested.

Data used by the Army Engineers and by the Department of Agriculture should be the same, as comparable reports will go to Congress, hence close cooperation with the District Engineer concerned is necessary. Some data will have to be collected through public hearings, and this fact should be borne in mind when preparing the questionnaire announcing the public hearings for a given watershed.

Watershed area data from various sources are being compiled. Where "official" source information is not available, base maps are being planimetered. These area data will be sent to the field agencies. They should be used unless better data are available locally. In such cases, give source of data and reasons for belief in its superiority.

Outline maps of the watersheds are being prepared and prints will be furnished. The "standard size" maps for filing will be the "Atlas" size. The "Standard scale" is 1:500,000. Outline maps of watersheds to this scale will be prepared here but in Atlas size. For some of the larger rivers, this will require a series of tracings. State maps to this scale can be obtained from the Soil Conservation Service or the Forest Service if not obtainable locally.

Confidential Nature of Report

The Preliminary Report and especially the Recommendations should be kept confidential, except for the Army Engineers. This will prevent pressure being brought upon the Department or action being taken to set aside the recommendations of the Department. There is no reason why the recommendations may not be discussed with the local District Engineer before the report is submitted.

Omissions from Reports

Estimates of cost of surveys or detailed estimates of costs of suggested programs should not be included in the preliminary examination report. Such estimates should be submitted in a separate memorandum accompanying the report in which should be given (a) the estimated cost of the survey recommended, (b) the length of time which such a survey will require, (c) information as to the character and extent of data to be obtained in such surveys, and (d) an indication of the methods recommended for use in making the detailed survey. The omission of these estimates from the report is necessary in order to safeguard the Department from being held to specific amounts for projects or detailed surveys as such estimates can be approximate only and therefore subject to considerable error.

Based on surveys for similar purposes, the over-all approximate costs for surveys for somewhat similar purposes amounted to about 20 cents an acre for the area surveys. Because of local difficulties, however, costs for the detailed surveys of watersheds probably will be much less than this.

No specific detailed plan of improvement or remedial measure or detailed cost estimates of any such specific project or plan should be incorporated in the preliminary report. Such plans and cost should be mentioned only in a most general way as they belong in the Detailed Survey report. However, as some knowledge of a specific plan for and approximate cost of such detailed measures may be of great value to the reviewing authorities in passing upon a report, any such detailed plans and cost estimates should be forwarded in a second memorandum accompanying and attached to the report. Any such estimates should be related specifically to the proper sections of the report in such manner that reviewing officers can relate such material to the proper place in the accompanying text.

Form of Report

Every effort should be made to make the report as brief as possible. To this end, keep the discussion to a minimum; use maps wherever possible to show the location of conditions, etc.; present data in tabular or graphic form where possible; make exposition clear; omit narrative; give facts as specifically as possible; omit lengthy discussion if the material has been compiled and published in some readily available form. Where reference is made to published sources, be sure to make proper footnote reference in the text. It is believed that a preliminary report for an average watershed should not run much over 20 typewritten pages, exclusive of tables, maps, illustrations, etc., though no limit is set for any report on any watershed.

The problem of the authors in preparing a preliminary report will be to make the discussion complete but short, and to include only enough data to support the recommendations for or against a Detailed Survey in all or part of the watershed. This will require careful balance in not collecting more information or in presenting factual data in greater detail than is needed to complete the report in the time available. Consequently discussions should be brief, sharp, and to the point.

Small scale maps (reductions to letter size) will be furnished for inclusion with the report, but where data cannot be adequately shown on such small scale maps, the atlas-sized maps should be folded into the report. Colors rather than crosshachures should be used.

Reports may be illustrated with photographs if desired.

Reports should be prepared on letter-sized paper, binding at the left edge. Reports should be bound in "Accobind Folders" using binding posts instead of tin fasteners for bulky reports.

The original and five copies of the report will be submitted by the Chairman of the Field Committee to the Chief of his Bureau. Each copy will have attached the separate memoranda as indicated in the paragraphs on "Omission from Reports".

Use the title page as given. Names of Bureaus will be typed on cover page, with signatures of the approving Field Flood Control Coordinating Committee members responsible for the report. The report will be dated.

Include as the Introduction, the exact form of the statement given in the outline.

Use the same topical headings in report as given in outline. Insert proper subject headings even though there may be no discussion or information under the heading.

Paragraphs should be numbered consecutively throughout the report without reference to sections.

(USE COVER PAGE AS GIVEN BELOW)

PRELIMINARY EXAMINATION REPORT

Run-off and Waterflow Retardation and Soil Erosion Prevention

(Name of watershed as given in Act)

In compliance with

Section 6 of the Flood Control Act, June 22, 1936

Public No. 738 -- 74th Congress

FIELD FLOOD CONTROL COORDINATING COMMITTEE

(Chairman)

(Service)

UNITED STATES DEPARTMENT OF AGRICULTURE

(Date)

PRELIMINARY EXAMINATION REPORT
ON
RUN-OFF AND WATERFLOW RETARDATION AND SOIL EROSION PREVENTION
Flood Control Act. June 22, 1936.

(Authority: Insert here in the report, the following paragraph. This paragraph is to be used as the introduction for each and every report. Insert the name of the watershed as given in the Flood Control Act of 1936).

Introduction

Authority: This report of preliminary examinations is made in compliance with the Flood Control Act of June 22, 1936, (Public No. 738 - 74th Congress), as follows:

"Section 6 *** The Secretary of Agriculture is authorized and directed to cause preliminary examinations and surveys for run-off and waterflow retardation and soil erosion prevention on the watersheds of ***
"_____."

- I. Description of area. (Very brief and generalized discussion of the major features of watershed having a bearing on the problem. When possible give information in map or tabular form and avoid written discussion.)
 - A. Location and size: General location. (Outline maps of standard size are being prepared.) Size of watershed, and, where area is large, of primary tributaries. Present data in tabular form.
 - B. Brief description of area with reference to relief, slope, elevation differences, and other similar factors bearing upon the water and erosion problems and their control. Use outline maps to show essential features.
 - C. Geology and Soils: (Very brief generalized discussion with data in tabular and map form wherever possible. Omit discussion not directly pertinent to soil-water relationships.)
 1. Geology: Geologic and physiographic provinces, etc. If watershed is included in several provinces, indicate approximate area in each and show location on map. Particular reference should be made to the relation of the geologic strata to run-off and underground storage capacity.
 2. Soil: Classify by broad groups. Discuss briefly characteristics having special bearing on run-off or erosion such as depth, texture, fertility, nature of sub-soil, etc. Show location on map if possible.
 3. Results of investigations. (soil-water relationships including absorption, run-off, erodibility, etc.) (Summary form only.) Include character of soil and cover conditions, and other essential data which will aid in evaluating results. If data are presented from outside the drainage area, show applicability to conditions in watershed. Present data in tabular or graphic form where possible. Give sources of information.
 4. Drainage of Swamps, lowlands, etc. Effect on run-off, etc. If large areas have been drained, show location on map.

- D. Drainage: Information with reference to general character of the stream (width, depth, gradient, behavior, etc.) and its principal tributaries and of the valleys through which they flow, etc. Also the characteristics of minor streams and of their valleys, etc.
- E. History of watershed: Brief discussion of original conditions in watershed and subsequent development. Show bearing of change in cover and land use on flood and erosion problems.
- F. Population: approximate number and general distribution, as to urban, rural, farm. Tabulate and show general distribution on maps where possible. (Census data) Indicate separately, population directly affected by "average" and "extreme" floods.

II. Land Economy: (The purpose of this section is to present a general picture of the economy of the area as it relates to the use and misuse of land, particularly those elements which are important in presenting a background for later discussion of damages from excessive run-off and erosion, and of the benefits obtainable from suggested control measures. Data should be obtained largely from Census and other secondary sources.)

- A. Present use of land: Give approximate percentage of area in different classes of use or cover conditions (natural and cultivated) including a breakdown of crop land into soil protecting crops (such as grass or close growing crops, etc.) in contrast with other crops which may not be soil protecting (cotton, tobacco, etc. etc.) Show trends in land use. Where possible, use maps to show locations, etc.
- B. Land ownership: Give approximate percentages in different classes of ownership (Federal, state, other public, private, farm tenancy, etc.). Also give major reservations. Indicate also trends in ownership. Where large areas in one type or condition of ownership are involved maps may show character, location, and extent. In large watersheds it may be advisable to show data by major subdivisions, either physical or political.
- C. Farm economy: Size of farms, type of farm (irrigation, dry farming, etc.) value and income. Give also information on taxation and tax delinquency where available. Show trends. Much of this information can be presented in both tabular and map form. In large watersheds, it may be advisable to show data by major subdivisions, either physical or political.
- D. Wild land economy (forest, brush, and range): Size and character of ownership, value, income, etc., for different kinds and character of cover conditions. Also give information where available on taxation and tax delinquency. Show trends. In large watersheds, it may be advisable to show data by major subdivisions, either physical or political.

III. Hydrologic data: (This section requires only a very brief discussion, with data in map, tabular, or diagramatic form where possible. Bring out essential facts bearing on water and erosion problems. Also bring out essential differences, if any, in records in different parts of watershed due to location of gauges and the application of these variations to the watershed. Give indication of reliability and value of available records, etc. Some Army Engineer reports contain data that should be used in these reports.)

A. Meteorological: Discussion for both main stream and major tributaries if needed. Give data in tabular or graphic form where possible. In some sections, the Army has already compiled much of this material in usable form.

1. Rainfall: Show location of gauges. (Differentiate between "standard", recording, and other types of gauges).

a. Amounts: Daily, monthly, annual. (Include also extremes in annual records or for flood periods).

b. Character and frequency of storms: particularly those with important bearing on run-off and erosion conditions.

c. Intensity of rainfall: especially in different parts of the watershed.

2. Snowfall:

a. Amount and general distribution (effect of altitude, slope, etc.) Show location of snow surveys on map and give information as to agency or agencies conducting such surveys and period covered.

b. Snow melt; rate, season, absorption during winter, etc.

3. Frozen ground; data on normal depths and approximate duration of frozen condition, especially in its relation to spring floods. Data on freezing in swamps, forests, pastures, and open land, especially desired where obtainable.

B. Stream flow: (Discussion not only for main streams but also separately for important tributaries where conditions justify and where data are available. General discussion: Bring out differences, if any, in different portions of watershed, indication of the reliability of the records, etc. Show location of gauges. Give data in tabular or diagram form where possible. Data will be largely available from Army, Weather Bureau, Bureau of Agricultural Engineering, or Geological Survey. Some will develop in public hearings, etc. Give reference to source.)

1. Discharge (annual, monthly, and during flood and storm periods).

2. Magnitude and frequency of floods and peak flows: seasons of occurrence.
 - a. Maximum discharges, frequencies, flash or gradual, seasons, etc. (Extremes and normal flood heights.)
 - b. Probabilities of extreme floods.
3. Stream behavior generally: Fluctuations in stream: Minimum flows and duration of extreme low water flows. Give data in tabular or graphic form if possible.
4. Ground water conditions: Rising or falling of well levels, etc., and causes such as increased draft for irrigation, decreased or increased absorption, etc. Cite specific cases if readily available.
5. Turbidity: Brief discussion of silt content at different stream stages, etc.

IV. Floods: (This section is to give background for determining how often damaging floods occur and kind of lands flooded.)

- A. Flood History: Give history in tabular form. Indicate extent (and location) of flooded areas and whether inundated at annual, periodic, or rare intervals.
- B. Causes of floods: include condition of watershed at time of floods (snow, frozen ground, excessive rains, saturated soil, etc.) Cite illustrations from specific floods.
- C. Condition of channels: (blocked by debris, log or ice jams at time of flood.)
- D. Relation between floods and land use and cover conditions: Brief discussion; include influence of recurrent floods on land use, cover and population.
- E. Effect of stream improvements (reservoirs, etc.) on flood control. Show location on map.

V. Problems of damage: Specific problems of the watershed which help to evaluate the losses due to floods, irregular waterflow, and erosion. Be as specific as the information permits and assign money values wherever possible. Keep discussion to a minimum. Present data in map and tabular form. It should be kept in mind that the data on damages must be adequately correlated with the data of the Army Engineers and basic data on the same watershed by the Department must not disagree with those presented by the Army.

- A. Damage by floods, high water, and excessive run-off.

1. Damage to crops, agricultural lands, pastures and forests: show separately best approximations of losses possible, give location of inundated lands involved, depths to which normally or exceptionally flooded, duration of inundation, reduction in values, etc. Bear in mind that the season and duration of inundation may affect damages.
 2. Damage to municipal and industrial property (Much of this information can be obtained from the Army Engineers, Weather Bureau, etc.) Show separately for structures, contents, equipment, and estimated value of lost business during restoration.
 3. Damage to bridges, railways, highways, communication lines (See note under "2" above). (Damage to interruption of commerce should be also included here, but damage to navigable waters through sedimentation should be covered in "V, B, 5.")
 4. Damage to other property and improvements (See note under "2". The agricultural representatives should endeavor especially to collect data on damages in rural sections and to rural improvements.) Separate as to structures, contents, equipment, etc.
 5. Damage to livestock and wildlife.
 6. Intangibles: Included here may be loss of time due to moving because of floods, loss of markets or marketability of produce, replacement of farm machinery, pumping of cellars, sickness and epidemics as an aftermath of floods, insect epidemics attacking man and livestock, damage to recreation possibilities, etc.
 7. Loss of life.
 8. Summary of damages by water. Present in tabular form.
- B. Damage by erosion: (all types) (Express losses in terms of value wherever possible.)
1. Erosion conditions: Extent; type; where prevalent; correlation of erosion with soil, topography, cover conditions and land use. Brief discussion of conditions as revealed by previous general surveys. Where data are known to be inadequate, some "reconnaissance conservation surveys" will be needed. Show data on map. Damage in a lower portion of a main stream or harbor (outside the watershed) caused by erosion of land within the watershed under discussion should also be included.
 2. Damage to land through removal of soil (express in both physical and economic terms). Include area lost through bank erosion. Give evidence, if available, where, as a result of erosion, there has been decreased land values, and decreased production due to impoverishment of site and consequent decreased income to farmers.

3. Damage from deposition of eroded materials on land (expressed in physical and economic terms). Include here also tangible damage to roads, from landslides, etc.
4. Damage from sedimentation: Channels, irrigation ditches, lakes, and reservoirs; cost of dredging especially for navigation; reduction in irrigation, power and flood-control value of improvements because of shortened life or decreased efficiency due to sedimentation, etc. Include damage to navigation.
5. Intangibles; such as decreased social aspects of community and individual family life; etc.

C. Damage to water supplies.

1. Reduction in ground water levels because of high run-off and decreased absorption and increased costs due to deepening wells, deeper pumping, changes in crop produced, etc. (Consider also the possibility of future needs for increased municipal and industrial water supplies within the watershed or in adjacent areas if affected.)
2. Decreased summer flows because of increased run-off and decreased absorption, and increased costs caused thereby. This may include also cost due to irregular flow, losses due to water shortages (agriculture, industry, domestic), etc.
3. Pollution of water supplies through turbidity caused by erosion and increased costs caused thereby, such as to municipalities and manufacturing plants, in desilting water supplies; etc. (Omit pollution due to industrial and other wastes.)

D. Damage to wildlife: Discuss in relation to fish as well as to other forms of wildlife. Assign values if possible.

E. Damage by insects associated with floods: Discuss briefly with reference to flood water mosquitoes, buffalo knats, blackflies, or crop-destroying insects attributable to floods.

F. Other land-use problems: Discuss any special problems related to or arising from flood and erosion damage peculiar to the watershed which may have been omitted elsewhere in this section. This may include such things as reduced standards of living, tendency towards tenant farming, increased mortgage indebtedness of property, increased indebtedness of local governments, etc.

G. Summary of all damages. (A to F inclusive.) Tabular form if possible.

VI. Remedial measures: (Give suggestions as to general measures and action which might be used to retard run-off and to correct erosion and flood conditions. Discuss briefly and in general; give suggestions for cropland, grassland, and forest separately. Give data in tabular form

where possible, and if information permits, also show location of major areas involved in map form. It is to be noted that only generalized ideas are wanted here; detailed surveys will determine the specific program and measures needed, their location, and cost.)

- A. Flood and erosion measures, both vegetative and mechanical, already in effect or practiced in the watershed. Describe briefly and indicate relative degree of effectiveness and use.
- B. Changes in land use: (applies primarily to major change from crops to pasture or to forest. Give approximate areas to which suggested changes might apply, indicate character of changed use, and an approximation of the cost per acre. Put in tabular form and if data permit, show location on maps.
- C. Changes in land management methods: applies primarily to possible changes in crops, in methods, or in cover conditions. Give separately for crops, pasture, swamps, forests, etc., showing briefly, for example, what changes can be brought about in density of cover, as through reseeding, reforestation, or through protection (fire, insects, disease, overgrazing), etc. If data permit, show location of areas which may be involved. Give some estimation of cost per acre and an indication of the extent costs should be charged to public flood control.
- D. Changes in ownership: (especially as from private to public, etc.) Give approximate acreage of areas in which major changes might be accomplished; show location in map form. Give estimated value per acre of lands involved. If areas should be retired from private ownership, indicate character of land, approximate area, and possible character of future use.
- E. Engineering devices: Applies both to engineering measures taken on land (terraces and other devices on slopes) and to various types of small dams and devices installed in stream channels, drainage ditches, etc. (Major structures and devices within the field of the Army Engineers should be excluded from this discussion.) Show location of areas on which measures on land will be needed, and tributaries on which devices in streams will be needed.
- F. Any other suggested measures:

VII. Benefits: (Consequences resulting from the application of the suggested Remedial Measures: This section is designed to bring out the essential benefits of water-retardation and erosion control works given in Section V above. It should give broad estimates, for each of the subject headings below, in both qualitative and quantitative form unless, as a result of previous work, specific information is available. Because of its importance, this section should be carefully prepared.)

- A. Water conservation: Approximations as to the extent to which water may be conserved in watershed, ground water supplies replenished, and dry period or summer flow increased, etc.

- B. Soil conservation: Extent to which soil will be conserved in place.
- C. Deposition correction: Extent to which sedimentation and deposition on lands and in stream channels, reservoirs, etc., will be prevented.
- D. Wildlife benefits: Extent to which remedial measures will benefit wildlife.
- E. Sanitation: Extent to which sanitary and health conditions will be improved, including relief from insect scourages.
- F. Extent to which damages of all kinds (See Section V) will be reduced.
- G. Economic and social consequences of remedial measures. (These consequences may be beneficial nationally or on a State and regional basis, but be detrimental in small political units or watersheds.)
 - 1. Enhanced value of property. (Brief discussion of the economic consequences of changes in land use).
 - 2. Changes in population.
 - 3. Change in type of farming and income.
 - 4. Changes in public finance: (including effect on taxation and public expenditures).
 - 5. Other changes.
- H. Total benefits: A general summary: Brief, concise, and to the point. Give data in tabular form. Separate if possible the public benefits from those accruing to the personal profit of private individuals, etc., and under public benefits, give indication of percentage of cost which might be a direct charge against flood control in contrast with other charges in the general public interest. An effort should be made also to translate qualitative benefits into quantitative values that can be balanced against money costs. Indicate extent to which Federal aid or direct Federal action seems justified because of interstate values, of impairment to national resources, etc.

VIII. Recommendations: Specific recommendations as to whether by means of a detailed survey of the Watershed, there is a reasonable possibility of developing a technically sound and feasible program of water-retardation, erosion-prevention, and flood-control in the watershed at a cost commensurate with estimated benefits. Give reasons for conclusion. These recommendations may apply either to the watershed as a whole or to those portions of the watershed where the problems

may be especially acute or where there is a real opportunity to perform some worthwhile service. If favorable to a survey, indicate kind of Detailed Survey required.

Some portions of the watershed may not need a Detailed Survey but needs can be met by a partial survey; indicate briefly those portions where detailed partial surveys may be needed. Give indication of time required. Should results of various previous surveys by the Department be available show how they will aid in the recommended Detailed Survey; give agency making survey, type of survey made, acreage covered, location, and value. List especially any aerial surveys.

If the evidence justifies the judgment locally that an unfavorable report on the need for a Detailed Survey is to be made, the whole report probably can be somewhat shorter than this outline indicates. Specific and valid reasons, however, must be advanced to justify the conclusions reached as unfavorable reports will be transmitted to Congress.

- IX. Cooperation: Indicate briefly the possibility and probable extent of cooperation from various Federal, State, and local governments; and from private individuals, corporations, associations, etc. in detailed surveys if later carried out, or in the application of measures for the control of run-off and erosion. If there are any State acts which specifically provide for Federal cooperation in measures of flood control including conservation of soils and forests give reference and digest. State if any major Federal project of cooperation underway such as Soil Conservation Service demonstration project, etc. etc.

Appendix:

- A. Bibliography of Source material; include manuscripts.
- B. Maps of watershed available: For each watershed indicate character of data shown. Indicate suitability for use in the Detailed Survey; date, scale, probable accuracy, usefulness, etc.
- C. Federal and State agencies consulted.
- D. Organizations and individuals consulted.
- E. List of hearings, giving dates, attendance at each and, if important facts were developed, a very brief indication of such facts.

(Circular)
6

UNITED STATES DEPARTMENT OF AGRICULTURE
Flood Control Coordinating Committee
Washington, D. C.

February 23, 1937

Field Coordinating Committees
For
Preliminary Examinations

Flood Control Act of 1936

Notes:

1. The list of watersheds as assigned to the following committees corrects in a few instances the list given in the circular of January 7, 1937.
2. The index numbers refer to the numbers used on the War Department Engineer Divisions and Districts map of November 1, 1934 sent you under separate cover. These numbers may be used for file reference if desired.

FIELD COORDINATING COMMITTEES FOR PRELIMINARY EXAMINATIONS
FLOOD CONTROL ACT OF 1936

Committee 1. Headquarters, New Haven, Conn.

Chairman, Director of Northeastern Forest Experiment Station, United States Forest Service, New Haven, Conn.

Members: Regional Conservator, Soil Conservation Service, Williamsport, Pennsylvania.

L. J. Salter, Jr, Bureau of Agricultural Economics Representative, c/o Resettlement Administration, New Haven, Conn.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
1	Androscoggin R., Me.	Boston, Mass.
2	Kennebec R., Me.	Boston, Mass.
9	Merrimack R., Mass. & N. H.	Boston, Mass.
3	Penobscot R., Me.	Boston, Mass.
4	Saco, R., Me.	Boston, Mass.
12	Blackstone R., Mass. & R. I.	Providence, R. I.
13	Seekonk R., R. I.	Providence, R. I.
5	Passumpsic R., Vt.	Providence, R. I.
8	West R., Vt., Weston to Brattleboro	Providence, R. I.
10	Connecticut R., Mass., N. H., Vt., & Conn.	Providence, R. I.
14	Woonasquatucket R., R. I.	Providence, R. I.
15	Moshasauk R., R. I.	Providence, R. I.
18	Beaverkill Cr., N. Y.	New York (1)
19	Beaverkill R., Sullivan Co., N. Y.	New York (1)
16	Birch Cr., N. Y.	New York (1)
17	Bushnelville Cr., N. Y.	New York (1)
20	Catskill Cr., Green Co., N. Y.	New York (1)
21	Delaware R., East Branch, Sullivan Co., N. Y.	New York (1)
23	Esopus Cr., N. Y.	New York (1)
24	Lackawack R., Sullivan Co., N. Y.	New York (1)
25	Neversink Cr., Ulster Co., N. Y.	New York (1)
26	Neversink R., Sullivan Co., N. Y.	New York (1)
28	Rondout Cr., Ulster Co., N. Y.	New York (1)
29	Sawkill Cr., Ulster Co., N. Y.	New York (1)
30	Schoharie Cr., Green Co., N. Y.	New York (1)
31	Schoharie Cr. & trib., Schoharie Co., N. Y.	New York (1)
32	Woodland Cr., N. Y.	New York (1)
33	Warner Bushkill Cr., N. Y.	New York (1)
34	Willowemoc R., Sullivan Co., N. Y.	New York (1)
7	Dog R., Vt.	New York (1)
6	Winooski R., Vt.	New York (1)

Committee 2. Headquarters, Philadelphia, Pennsylvania

Chairman, Director, Allegheny Forest Experiment Station, United States Forest Service, Philadelphia, Pennsylvania

Members: Regional Conservator, Soil Conservation Service, Williamsport, Pennsylvania.

Emil Rauchenstein, Bureau of Agricultural Economics Representative, 2623 South Building, Washington, D. C.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
50	Passaic R., N. J.	New York (2)
41	Delaware R., N. Y.	New York (1)
52	Delaware R., Tinicum Twp., Pa.	Philadelphia, Pa.
61	Marshy Hope Cr., Md.	Baltimore, Md.
128	Youghiogheny R., Pa.	Pittsburgh, Pa.
62	Patuxent R. & trib., Md.	Washington, D. C.

Committee 3. Headquarters, Williamsport, Pennsylvania.

Chairman, Regional Conservator, Soil Conservation Service,
Williamsport, Pa.

Members: Director of Northeastern Forest Experiment Station,
United States Forest Service, New Haven, Conn.

T. D. Johnson, Bureau of Agricultural Economics
Representative, 2623 South Building, Washington,
D. C.

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WATERSHED

ENGINEER DISTRICT

35	Canistota (Sanisto) R., N. Y.	1) Richmond, Va. Sp.Bd.
38	Chemung R., N. Y.	Richmond, Va. Sp.Bd.
39	Chenango R., N. Y.	Richmond, Va. Sp.Bd.
40	Cohocton R., N. Y.	Richmond, Va. Sp.Bd.
53	Lackawanna R., Pa.	Richmond, Va. Sp.Bd.
46	Susquehanna R., N. Y. & Pa.	Richmond, Va. Sp.Bd.
47	Tioga R., N. Y.	Richmond, Va. Sp.Bd.
48	Tioga R., N. Y.	Richmond, Va. Sp.Bd.
37	Cayuga Lake, N. Y.	2) New York (1) Sp.Bd.
42	Keuka Lake, N. Y.	New York (1) Sp.Bd.
44	Onondaga Cr., N. Y.	New York (1) Sp.Bd.
27	Oswego, Oneida, Seneca, & Clyde R., N. Y.	New York (1) Sp.Bd.
45	Seneca Cr., N. Y.	New York (1) Sp.Bd.
43	New Cr., N. Y.	New York (1)
36	Cattaraugus Cr., N. Y.	Buffalo, N. Y.
22	Black R., N. Y.	Buffalo, N. Y.
49	Genesee R., N. Y.	Buffalo, N. Y.
22	Moose R., N. Y.	Buffalo, N. Y.
51	Allegheny R., & trib., Pa.	3) Pittsburgh, Pa.

1) = Special Board - Division Engineer, South Atlantic Division at
Richmond. Senior Member.

2) = Special Board - Division Engineer, North Atlantic Division at
New York. Senior Member.

3) = Susquehanna, mentioned with the Allegheny River in the Act, is
also mentioned separately (46). For this reason, the Susquehanna
is omitted here.

Committee 4. Headquarters, Dayton, Ohio.

Chairman, Regional Conservator, Soil Conservation Service,
Kuehns Bldg., Dayton, Ohio.

Members: Director of Central States Forest Experiment
Station, United States Forest Service, Columbus,
Ohio.

G. E. Young, Bureau of Agricultural Economics
Representative, c/o Resettlement Administration,
342 Massachusetts Avenue, Indianapolis, Indiana.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
141	Sandusky R., Ohio	1) Cincinnati, Ohio. Sp.Bd.
55	Licking R. near Salyers- ville, Magoffin Co., Ky.	Cincinnati, Ohio
57	Licking R. & trib., Ky.	Cincinnati, Ohio
142	Mad R. at Springfield, Ohio	Cincinnati, Ohio
127	Mad R., Ohio	Cincinnati, Ohio

1) = Special Board - Division Engineer. Ohio River Division at
Cincinnati. Senior Member.

Committee 5A Headquarters, Asheville, N. C.

Chairman, Director of Appalachian Forest Experiment Station,
United States Forest Service, Federal Building,
Asheville, N. C.

Members: Regional Conservator, Soil Conservation Service,
Williamsport, Pennsylvania.

H. H. Wooten, Bureau of Agricultural Economics Representative,
714 Arnstein Building, Knoxville, Tenn.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
56	Big Sandy R. & trib., Ky.	Huntington, W. Va.
130	Greenbrier R. & trib., W. Va.	Huntington, W. Va.
129	Cheat R. & trib., W. Va.	Pittsburgh, Pa.

Committee 5B Headquarters, Asheville, N. C.

Chairman, Director, Appalachian Forest Experiment Station,
United States Forest Service, Federal Building,
Asheville, N. C.

Members: Regional Conservator, Soil Conservation Service,
Spartanburg, S. C.

H. H. Wooten, Bureau of Agricultural Economics Representative,
714 Arnstein Building, Knoxville, Tenn.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
54	Potomac R. & trib.	Washington, D. C.
63	James R., Va.	Norfolk, Va.
79	Cataco Cr. & branches, Morgan Co., Ala.	Nashville, Tenn.
81	Flint Cr. & branches, Morgan Co., Ala.	Nashville, Tenn.
80	Flint R., Ala. & Tenn.	Nashville, Tenn.
77	Paint Rock R., Ala. & Tenn.	Nashville, Tenn.

Committee 6A Headquarters, Spartanburg, S. C.

Chairman, Regional Conservator, Soil Conservation Service,
Spartanburg, S. C.

Members: Director of Appalachian Forest Experiment Station,
United States Forest Service, Asheville, N. C.

H. H. Wooten, Bureau of Agricultural Economics Repre-
sentative, 714 Arnstein Building, Knoxville, Tenn.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
64	Contentnea Cr., N. C.	Wilmington, N. C.
65	Drum Inlet, N. C.	Wilmington, N. C.
66	Edisto R. & trib., S. C.	Charleston, S. C.
67	Great & Little Fee Dee & Lynches R., S. C. & N. C.	
	Waccamaw R., S. C. & N. C.	Charleston, S. C.
68	Congaree, Wateree, Santee & Cooper R., S. C.	Charleston, S. C.

Committee 6B Headquarters, Spartanburg, S. C.

Chairman, Regional Conservator, Soil Conservation Service,
Spartanburg, S. C.

Members: Director of Southern Forest Experiment Station,
United States Forest Service, New Orleans, La.

W. A. Hartman, Bureau of Agricultural Economics
Representative, Standard Clubs Bldg., 305 Montgomery
Street, Montgomery, Ala.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
70	Altamaha R., Ga.	Savannah, Ga.
72	Ogeechee R., Ga.	Savannah, Ga.
71	Savannah R., Ga.	Savannah, Ga.
74	Hillsboro R., Fla.	Jacksonville, Fla.
75	Intracoastal Waterway through Broward Co., Fla.	Jacksonville, Fla.
76	Withlacoochee R., Fla.	Jacksonville, Fla.

Committee 7A Headquarters, New Orleans, La.

Chairman, Director of Southern Forest Experiment Station,
United States Forest Service, 400 Union Bldg.
837 Gravier Street, New Orleans, La.

Members: Regional Conservator, Soil Conservation Service,
Spartanburg, S. C.

W. A. Hartman, Bureau of Agricultural Economics
Representative, Standard Clubs Bldg., 305 Montgomery
Street, Montgomery, Ala.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
69	Coosa R. & trib., Ga.	Mobile, Ala.
78	Coosa R., & trib., Ga. & Ala.	Mobile, Ala.
73	Pearl R., Miss.	Mobile, Ala.
11	Big Black R., Miss.	Vicksburg, Miss.

Committee 7B Headquarters, New Orleans, La.

Chairman, Director of Southern Forest Experiment Station,
United States Forest Service, 400 Union Bldg.
837 Gravier Street, New Orleans, La.

Members: Regional Conservator, Soil Conservation Service,
Fort Worth, Texas.

B. M. Gile, Bureau of Agricultural Economics
Representative, 7th & Main Streets, Little Rock,
Ark.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
82	Mermentau R., La.	New Orleans, La. (1)
94	Arkansas R. & Fourche Bayou, vicinity of Little Rock & North Little Rock, Ark.	Memphis, Tenn.
99	Petit Jean R., Ark.	Memphis, Tenn.
96	Big Mulbury Cr., Ark.	Memphis, Tenn.
95	Point Remove Cr., Ark.	Memphis, Tenn.
100	Poteau R., Ark.	Memphis, Tenn.

Committee 8. Headquarters, Fort Worth, Texas.

Chairman, Regional Conservator, Soil Conservation Service,
Fort Worth, Texas.

Members: Director of Southern Forest Experiment Station,
United States Forest Service, New Orleans, La.

B. H. Thibodeaux, Bureau of Agricultural Economics
Representative, c/o Experiment Station, College
Station, Texas

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
97	Cossatot R., Ark.	Vicksburg, Miss.
101	Little Missouri R., Ark.	Vicksburg, Miss.
98	Little R., Ark.	Vicksburg, Miss.
102	Red R., Ark.	Vicksburg, Miss.
88	Pease R. & trib., Texas	Vicksburg, Miss.
103	Sulphur R., Ark.	Vicksburg, Miss.
86	Sulphur R., Texas	Vicksburg, Miss.
93	Caddo Lake Dam & Jefferson- Shreveport Waterway, La. & Texas	Vicksburg, Miss.
84	Leon R., Texas	Mineral Wells, Texas
83	Buffalo Bayou, Texas	Galveston, Texas
92	Colorado (Lower) R., Texas & N. Mex.	Galveston, Texas
90	Colorado R. above the county line between Coke & Runnels Counties, Texas & N. Mex.	Galveston, Texas
87	Neches R. & trib., Texas	Galveston, Texas
89	Nueces R. & trib., Texas	Galveston, Texas
91	Sabine R., Texas & La.	Galveston, Texas
85	Trinity R., Texas	Galveston, Texas

Committee 9. Headquarters, Amarillo, Texas.

Chairman, Regional Conservator, Soil Conservation Service,
Amarillo, Texas.

Members: Director of Rocky Mountain Forest Experiment
Station, United States Forest Service, Fort Collins,
Colorado.

K. H. Myer, Bureau of Agricultural Economics Repre-
sentative, 402 Oliver Eakle Bldg., Amarillo, Texas.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
143	Apishapa R., Colo.	Memphis, Tenn.
148	Cimarron (Dry) R., Union Co., N. Mex.	Memphis, Tenn.
145	Cucharas R., Colo.	Memphis, Tenn.
146	Huerfano R., Colo.	Memphis, Tenn.
144	Purgatoire R., Colo.	Memphis, Tenn.
114	Republican R., Nebr. & Kansas & Colo.	Kansas City, Mo.

Committee 10A Headquarters, Salina, Kansas.

Chairman, Regional Conservator, Soil Conservation Service,
Salina, Kansas.

Members: Director of Southern Forest Experiment Station,
United States Forest Service, New Orleans, La.

K. H. Myer, Bureau of Agricultural Economics
Representative, 402 Oliver Eakle Bldg., Amarillo,
Texas.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
211	Eufaula Reservoir, Okla.	Memphis, Tenn.
214	Fort Gibson " Okla.	Memphis, Tenn.
218	Mannford " Okla.	Memphis, Tenn.
213	Markham Ferry" Okla.	Memphis, Tenn.
216	Oolagah " Okla.	Memphis, Tenn.
212	Pensacola " Okla.	Memphis, Tenn.
221	Tenkiller Ferry Reservoir on Illinois R., Okla.	Memphis, Tenn.
220	Tulsa & W. Tulsa Levees on Arkansas R., Okla.	Memphis, Tenn.
215	Wister Reservoir, Okla.	Memphis, Tenn.
217	Braman " Okla.	Memphis, Tenn.
107	Cow Cr., Kansas	Memphis, Tenn.
219	Chikaskia R., levees south of Antwine, Okla.	Memphis, Tenn.
210	Kenton Reservoir, Cimarron R., Okla.	Memphis, Tenn.
111	Grand (Neosho) R. in Morris Co., Kansas	Memphis, Tenn.
117	Verdigris R., Kansas	Memphis, Tenn.
222	Eagle Town Reservoir, Okla.	Vicksburg, Miss.

Committee 10B Headquarters, Salina, Kansas.

Chairman, Regional Conservator, Soil Conservation Service,
Salina, Kansas.

Members: Director of Rocky Mountain Forest Experiment Station,
United States Forest Service, Fort Collins, Colo.

K. H. Myer, Bureau of Agricultural Economics Repre-
sentative, 402 Oliver Finkle Bldg., Lubbock, Texas.

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WATERSHED

ENGINEER DISTRICT

108	Marais des Cygnes R., Kansas	Kansas City, Mo.
109	Kansas City on Mo. & Kansas R., Kansas & Mo.	Kansas City, Mo.
110	Lawrence, N. Lawrence & immediately contiguous areas on Kansas R., Kansas	Kansas City, Mo.
112	Manhattan, Kansas	Kansas City, Mo.
113	Marmaton R., Kansas	Kansas City, Mo.
115	Smoky Hill R., Kansas	Kansas City, Mo.
116	Big Blue R. an affluent of the Kansas R. & trib. Kansas	Kansas City, Mo.

Committee 11. Headquarters, Columbus, Ohio.

Chairman, Director of Central States Forest Experiment Station,
United States Forest Service, 103 15th Avenue, Columbus,
Ohio.

Members: Regional Conservator, Soil Conservation Service,
Dayton, Ohio.

G. E. Young, Bureau of Agricultural Economics Repre-
sentative, 432 Massachusetts Avenue, Indianapolis, Ind.

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WATERSHED

ENGINEER DISTRICT

58	Mud R. & Wolfe (i.e., Wolf Lick) Cr., Ky.	Louisville, Ky.
59	Rough R. & trib., Ky.	Louisville, Ky.
60	Nolin R. & trib., Ky.	Louisville, Ky.

Committee 12. Headquarters, Rapid City, S. Dak.

Chairman, Regional Conservator, Soil Conservation Service,
Rapid City, S. Dak.

Members: Director of Lake States Forest Experiment Station,
United States Forest Service, St. Paul, Minn.

T. E. Thorfinnson, Bureau of Agricultural Economics
Representative, Union Terminal Building, Lincoln,
Nebraska.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
119	Souris R., N. Dak.	St. Paul, Minn.
137	Belle Fourche R. & trib. Wyoming	Omaha, Nebr.

Committee 13A. Headquarters, St. Paul, Minn.

Chairman, Director of Lake States Forest Experiment Station,
United States Forest Service, St. Paul, Minn.

Members: Regional Conservator, Soil Conservation Service,
Dayton, Ohio.

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WATERSHED

ENGINEER DISTRICT

140	Sebewaing R., Mich.	Detroit, Mich.
139	Saginaw R., Mich.	Detroit, Mich.

Committee 13B. Headquarters, St. Paul, Minn.

Chairman, Director of Lake States Forest Experiment Station,
United States Forest Service, St. Paul, Minn.

Members: Regional Conservator, Soil Conservation Service,
Des Moines, Iowa.

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WATERSHED

ENGINEER DISTRICT

126	St. Croix R., Minn. & Wis.	St. Paul, Minn.
121	Cannon R., Minn.	St. Paul, Minn.
122	Crow R., Minn.	St. Paul, Minn.
124	Roseau R., Minn.	St. Paul, Minn.
123	Rum R., Minn.	St. Paul, Minn.
125	St. Louis R., Minn.	Duluth, Minn.
131	Fond du Lac R. & trib., Wis.	Milwaukee, Wis.
132	Fox R. & trib., Wis.	Milwaukee, Wis.

Committee 14A. Headquarters, Des Moines, Iowa.

Chairman, Regional Conservator, Soil Conservation Service,
Des Moines, Iowa.

Members: Director of Lake States Forest Experiment Station,
United States Forest Service, St. Paul, Minnesota.

G. E. Young, Bureau of Agricultural Economics Representative,
342 Massachusetts Avenue, Indianapolis,
Indiana.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
120	Minnesota R., Minn. Iowa, & S. Dak.	St. Paul, Minn.

Committee 14B. Headquarters, Des Moines, Iowa.

Chairman, Regional Conservator, Soil Conservation Service,
Des Moines, Iowa.

Members: Director of Central States Forest Experiment Station,
United States Forest Service, Columbus, Ohio.

G. E. Young, Bureau of Agricultural Economics Representative,
342 Massachusetts Avenue, Indianapolis,
Indiana.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
104	North Fabius R., Mo.	Rock Island, Ill.
105	Salt R., Mo.	Rock Island, Ill.
118	Spoon R., Ill.	Chicago, Ill.
106	Weldon R., Mo.	Kansas City, Mo.

Committee 15. Headquarters, Fort Collins, Colo.

Chairman, Director of Rocky Mountain Forest Experiment Station,
United States Forest Service, Fort Collins, Colorado.

Members: Regional Conservator, Soil Conservation Service,
Rapid City, S. Dak.

Byron Hunter, Bureau of Agricultural Economics Representative,
c/o P. W. Cockerill, New Mexico State College,
State College, New Mexico.

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WATERSHED

ENGINEER DISTRICT

134	North Platte R. & trib. Wyoming	Omaha, Nebr.
135	Big Horn R. & trib., Wyoming	Omaha, Nebr.
138	Powder R. & trib., Wyoming	Omaha, Nebr.

Committee 16. Headquarters, Albuquerque, N. Mex.

Chairman, Regional Conservator, Soil Conservation Service,
Albuquerque, New Mexico.

Members: Director of Southwestern Forest Experiment Station,
United States Forest Service, Tucson, Arizona.

Eshref Shevky, Bureau of Agricultural Economics
Representative, c/o Soil Conservation Service,
Albuquerque, New Mexico.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
147	Gila River & trib. above the San Carlos project diversion dam, Arizona & N. Mex.	Los Angeles, Calif.
149	Santa Cruz & Sonoita R., Santa Cruz Co., Ariz.	Los Angeles, Calif.
151	Lower Santa Cruz R., Pinal Co., Ariz.	Los Angeles, Calif.
152	Queen Cr., Ariz.	Los Angeles, Calif.
153	Hassayampa R., Ariz.	Los Angeles, Calif.

Committee 17-A, Headquarters, Ogden, Utah.

Chairman, Director of Intermountain Forest & Range Experiment Station, United States Forest Service, Ogden, Utah.

Members: Regional Conservator, Soil Conservation Service, Albuquerque, New Mexico

N. W. Johnson, Bureau of Agricultural Economics Representative, c/o College of Agriculture, University of Montana, Bozeman, Montana.

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WATERSHED

ENGINEER DISTRICT

136	Green River & trib., Wyo.	Los Angeles, Calif.
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Committee 17-B, Headquarters, Ogden, Utah

Chairman, Director of Intermountain Forest & Range Experiment Station, United States Forest Service, Ogden, Utah

Members: Regional Conservator, Soil Conservation Service, Spokane, Washington.

N. W. Johnson, Bureau of Agricultural Economics Representative, c/o College of Agriculture, University of Montana, Bozeman, Montana

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WATERSHED

ENGINEER DISTRICT

133	Snake River and trib., Wyo.	Portland, Oregon (2)
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Committee 18. Headquarters, Berkeley, California.

Chairman, Director of California Forest Experiment Station,
United States Forest Service, Berkeley, Calif.

Members: Regional Conservator, Soil Conservation Service,
Santa Paula, California.

E. E. Wilson, Bureau of Agricultural Economics
Representative, 227 Wells Fargo Building, 85 Second
Street, San Francisco, California.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
154	San Diego R. Calif.	Los Angeles, Calif.
155	Los Angeles R. & trib., Calif.	Los Angeles, Calif.
157	San Diego, San Luis Rey & Tiñ Juana R., San Diego Co., Calif.	Los Angeles, Calif.
164	San Gabriel R. & trib., Calif.	Los Angeles, Calif.
165	Canal Creek, Calif.	Sacramento, Calif.
166	Fahrens Cr., Calif.	Sacramento, Calif.
169	Miles Cr., Calif.	Sacramento, Calif.
167	Black Rascal Cr., Calif.	Sacramento, Calif.
161	Bear, Black Rascal & Mariposa Cr., Merced Co., Calif.	Sacramento, Calif.
170	Owens Cr., Calif.	Sacramento, Calif.
171	Duck Cr., Calif.	Sacramento, Calif.
172	Mariposa Cr., Calif.	Sacramento, Calif.
173	Little Deadmans Cr., Calif.	Sacramento, Calif.
174	Big Deadmans Cr., Calif.	Sacramento, Calif.
175	Burns Cr., Calif.	Sacramento, Calif.
168	Bear Cr., Calif.	Sacramento, Calif.
162	American, Feather, Yuba, & Bear R., trib. of the Sacramento R.	Sacramento, Calif.
156	San Joaquin R. from Herndon to Antioch & its main east side trib.	Sacramento, Calif.
163	Sacramento & San Joaquin R. valleys, Calif.	Sacramento, Calif.
160	Eel & Mad R., Humbolt Co., Calif.	San Francisco, Calif.

Committee 19. Headquarters, Tucson, Arizona.

Chairman, Director of Southwestern Forest Experiment
Station, United States Forest Service, Tucson,
Arizona.

Members: Regional Conservator, Soil Conservation Service,
Albuquerque, New Mexico.

Eshref Shevky, Bureau of Agricultural Economics
Representative, c/o Soil Conservation Service,
Albuquerque, New Mexico.

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Sabino Canyon, Pima Co.,
Arizona

Los Angeles, Calif.

Committee 20. Headquarters, Santa Paula, Calif.

Chairman, Regional Conservator, Soil Conservation Service,
Santa Paula, Calif.

Members: Director of California Forest Experiment Station,
United States Forest Service, Berkeley, Calif.

E. E. Wilson, Bureau of Agricultural Economics
Representative, 227 Wells Fargo Building, 85
Second Street, San Francisco, Calif.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
159	Pajaro R., San Benito Co., Calif.	San Francisco, Calif.
158	Salinas R., Monterey Co., Calif.	San Francisco, Calif.
176	Ventura R., Calif.	Los Angeles, Calif.

Committee 21. Headquarters, Spokane, Washington.

Chairman, Regional Conservator, Soil Conservation Service,
Spokane, Washington.

Members: Director of Pacific Northwest Forest Experiment
Station, United States Forest Service, Portland,
Oregon.

H. E. Selby, Bureau of Agricultural Economics
Representative, 416 Mayer Building, Portland,
Oregon.

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ENGINEER DISTRICT

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Walla Walla R. & trib.,
Washington

Portland, Oregon (2)

Committee 22. Headquarters, Portland, Oregon.

Chairman, Director of Pacific Northwest Forest Experiment
Station, United States Forest Service, New Federal
Court House, Portland, Oregon.

Members: Regional Conservator, Soil Conservation Service,
Spokane, Washington.

H. E. Selby, Bureau of Agricultural Economics
Representative, 416 Mayer Building, Portland, Ore.

<u>INDEX</u>	<u>WATERSHED</u>	<u>ENGINEER DISTRICT</u>
208	Tanana R. & Chena Slough, Alaska	Seattle, Wash.
209	Lowell Cr., Alaska	Seattle, Wash.
189	Chehalis R. & trib., Wash.	Seattle, Wash.
196	Skagit R. & trib., Wash.	Seattle, Wash.
199	Yakima R. & trib., Wash.	Seattle, Wash.
190	Columbia R. & trib., Wash.	Seattle, Wash.
191	Goldsborough Cr., Wash.	Seattle, Wash.
193	Skykomish R., Wash.	Seattle, Wash.
194	Snoqualmie R., Wash.	Seattle, Wash.
195	Snohomish R. & trib., Wash.	Seattle, Wash.
198	Nooksac R., Wash.	Seattle, Wash.
200	Stilaguamish R., Wash.	Seattle, Wash.
201	Nisqually R., Wash.	Seattle, Wash.
202	Cedar R., Wash.	Seattle, Wash.
204	Duwamish R., Wash.	Seattle, Wash.
205	Sammamish R., Wash.	Seattle, Wash.
197	Green R., Wash.	Seattle, Wash.
177	Coos R. & trib., Ore.	Portland, Ore. (1)
178	Coquille R. & trib., Ore.	Portland, Ore. "
179	Nehalem, Miami, Kilchis, Wilson, Trask, & Tillamook R., Ore.	Portland, Ore. "
180	Nehalem R. & trib. Clatsop, Columbia, & Washington Counties, Ore.	Portland, Ore. "
181	Rogue R. & trib., Ore.	Portland, Ore. "
182	Siuslaw R. & trib., Ore.	Portland, Ore. "
184	Siletz R. & trib., Ore.	Portland, Ore. "
185	Umpqua R. & trib., Ore.	Portland, Ore. "
186	Willamette R., Ore.	Portland, Ore. "
187	Yaquina R. & trib., Ore.	Portland, Ore. "
188	Cowlitz R. & trib., Wash.	Portland, Ore. "
192	Lewis R. & trib., Wash.	Portland, Ore. "
183	Salmon R., Ore.	Portland, Ore. (2)

Committee 23. Headquarters, Missoula, Montana.

Chairman, Director of Northern Rocky Mountain Forest Experiment
Station, United States Forest Service, Missoula, Montana.

Members: Regional Conservator, Soil Conservation Service,
Spokane, Washington.

N. W. Johnson, Bureau of Agricultural Economics Repre-
sentative, c/o College of Agriculture, University of
Montana, Bozeman, Montana.

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WATERSHED

ENGINEER DISTRICT

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Spokane R. & trib., Idaho

Seattle, Wash.

UNITED STATES DEPARTMENT OF AGRICULTURE

FLOOD CONTROL COORDINATING COMMITTEE
Room 2020 - South Building

February 27, 1937.

LIST OF FIELD CONSULTANTS - DEPARTMENT OF AGRICULTURE - FLOOD CONTROL
ACT - PUBLIC NO. 738 - 74th CONGRESS.

1. Reference is made to paragraph five of circular letter of February 23, 1937 "Procedure for Preliminary Examinations Under the Flood Control Act of June 22, 1936", which provides that the Field Coordinating Committees shall consist of three members of the Bureau of Agricultural Economics, the Forest Service, and the Soil Conservation Service, with consultants available from other bureaus of the Department for special services as needed. There follows the names and addresses of field representatives to be consulted when desirable by the Chairmen of the Field Coordinating Committees.

Agricultural Adjustment Administration:

Request for services should be addressed to the Flood Control Coordinating Committee through the appropriate Bureau Chief of the Field Committee Chairman.

Bureau of Agricultural Engineering

Lewis A. Jones, Chief, Division of Drainage, Washington, D. C.
For territory east of the 97th meridian.

W. W. McLaughlin, Chief, Division of Irrigation, Berkeley, California. For territory west of the 97th meridian.

Bureau of Biological Survey:

Territory

Wm. N. Rush Regional Director	404 U.S. Court House Portland, Oregon	Washington, Oregon, California, Nevada
Leo Laythe Regional Director	221 Custom House Denver, Colorado	Montana, Idaho, Wyoming, Utah, Colorado
D. A. Gilchrist Regional Director	404 Federal Building Albuquerque, N. Mex.	Arizona, New Mexico, Oklahoma, Texas
George Tonkin Regional Director	211 Federal Bldg., Moline, Illinois	Nebraska, Kansas, Iowa, Missouri
Roy Moore Regional Director	State College, Miss.	Arkansas, Louisiana, Mississippi, Tennessee, Alabama

(Over)

Bureau of Biological Survey (Continued)

Daniel Janzen Regional Director	Michigan State College East Lansing, Michigan	Michigan, Illinois, Indiana, Ohio, Kentucky, West Virginia
James Silver Regional Director	c/o Biological Survey Washington, D. C.	Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida
Bertrand E. Smith Regional Director	310 Federal Building Portland, Maine	Maine, New Hampshire, Massachusetts, Rhode Island, Vermont, New York, Pennsyl- vania, New Jersey, Connecticut
Burnie Maurek Regional Director	209 Federal Bldg. Minot, North Dakota	North Dakota, South Dakota, Minnesota, Wisconsin

Bureau of Chemistry and Soils:

Mark Baldwin - Washington, D. C.
District No. 1 - New England States, New York, Pennsylvania,
New Jersey, Ohio, Indiana, Kentucky, Michigan,
Wisconsin, Part of Minnesota.

W. E. Hearn - Washington, D. C.
District No. 2 - West Virginia, Maryland, Delaware, Virginia, and
all other Southern States to the Mississippi River.

In addition, J. W. Moon, Assistant Inspector for District No. 2 is temporarily located at #505 Sterling Avenue, Chattanooga, Tenn.

Thomas D. Rice - Washington, D. C.
District No. 3 - Part of Minnesota, The Dakotas, Montana, Eastern
Wyoming, Eastern Colorado, Nebraska, Northern
Kansas, Iowa, Missouri, and Illinois.

In addition Doctor F. A. Hayes, Assistant Inspector for District No. 3 is located at the University of Nebraska, Lincoln, Neb.

W. T. Carter, College Station, Texas (Agricultural Experiment Station)
District No. 4 - Southern Kansas, Southwest Missouri, Oklahoma,
Arkansas, Texas, Louisiana, and Eastern New Mexico.

M. H. Lapham, Box #54, Berkeley, California
District No. 5 - Pacific Coast States, Western Montana, Idaho,
Utah, Western Wyoming, Western Colorado, Arizona,
Western New Mexico.

Bureau of Entomology and Plant Quarantine:

New England States and New York - Mr. R. C. Brown,
Laboratory, Bureau of
Entomology and Plant
Quarantine, U. S. D. A.,
New Haven, Connecticut.

Bureau of Entomology and Plant Quarantine (Continued)

Pennsylvania, New Jersey and West Virginia	-	Mr. C. W. Collins, Laboratory, Bureau of Entomology and Plant Quarantine, U. S. D. A., Morristown, N. J.
Delaware, Maryland and Virginia	-	Mr. E. C. Cushing, Assistant Leader, Division of Insects Affecting Man and Animals, Bureau of Entomology and Plant Quarantine, U. S. D. A., Washington, D. C.
North Carolina, South Carolina and Georgia	-	Mr. J. B. Hull, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., Postoffice Building, Savannah, Georgia.
Florida	-	Dr. W. V. King, Laboratory, Division of Insects Affecting Man & Animals, Bureau of Entomology and Plant Quarantine, U. S. D. A. Fairgrounds, near West Amelia and Parramore Streets, Orlando, Florida.
Louisiana, Mississippi, Alabama and Arkansas	-	Dr. T. E. Snyder, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., Stern Building, New Orleans, La.
Ohio	-	Dr. R. C. Hall, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., Horticulture and Forestry Bldg., Ohio State University, Columbus, Ohio.
Michigan, Minnesota, and Wisconsin	-	Mr. L. W. Orr, c/o Forest Service, Federal Building, Milwaukee, Wisconsin.
Illinois and Indiana	-	Mr. C. M. Packard, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., Postoffice Building, Lafayette, Indiana.

Bureau of Entomology and Plant Quarantine (Continued)

Kansas, Nebraska, Missouri and Arkansas	-	Dr. R. T. Cotton, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., 1204 Fremont Street, Manhattan, Kansas.
Iowa	-	Mr. R. W. Wells, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., 325 Walnut Avenue, Ames, Iowa.
Texas	-	Mr. D. C. Parman, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., 224 Mulberry Street, Uvalde, Texas.
Colorado, Utah, and Wyoming.	-	Mr. J. A. Beal, 210 Forestry Building, Colorado State College, Fort Collins, Colorado.
Arizona and New Mexico	-	Mr. V. L. Wildermuth, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., 415 East Eighth Street, Tempe, Arizona.
California	-	Mr. J. M. Miller, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., University of California, Berkeley, California.
Washington and Oregon	-	Mr. F. P. Keen and Mr. H. H. Stage United States Courthouse, Portland, Oregon.
Idaho	-	Mr. J. C. Evenden, Laboratory, Bureau of Entomology and Plant Quarantine, U.S.D.A., Federal Building, Coeur d'Alene, Idaho. Mr. H. H. Stage, United States Courthouse, Portland, Oregon.

Resettlement Administration:

Mr. Leonard A. Salter, Acting Chief,
Land Use Planning Section,
Resettlement Administration,
New Haven, Connecticut

Mr. F. M. Thrun,
Land Use Planning Chief,
Resettlement Administration,
Milwaukee, Wisconsin.

Mr. Gladwin E. Young, Chief,
Land Use Planning Section,
Resettlement Administration,
Indianapolis, Indiana.

Mr. Paul W. Wager, Chief,
Land Use Planning Section,
Resettlement Administration,
Raleigh, North Carolina.

Mr. William A. Hartman, Chief,
Land Use Planning Section,
Resettlement Administration,
Montgomery, Alabama.

Mr. B. M. Gile, Chief,
Land Use Planning Section,
Resettlement Administration,
Little Rock, Arkansas.

Mr. T. S. Thorfinnson, Chief,
Land Use Planning Section,
Resettlement Administration,
Lincoln, Nebraska.

Mr. M. F. Burrill, Acting Chief,
Land Use Planning Section,
Resettlement Administration,
Dallas, Texas.

Mr. E. E. Wilson, Chief,
Land Use Planning Section,
Resettlement Administration,
San Francisco, California.

Mr. C. H. Willson, Chief,
Land Use Planning Section,
Resettlement Administration,
Denver, Colorado.

Region I (Includes States of
Maine, New Hampshire, Vermont,
Massachusetts, Connecticut,
Rhode Island, New Jersey, New
York, Pennsylvania, Delaware,
Maryland and D. C.)

Region II (Includes States of
Michigan, Wisconsin, and
Minnesota).

Region III. (Includes States of
Missouri, Ohio, Illinois, Iowa,
and Indiana).

Region IV. (Includes States of
West Virginia, Virginia, Kentucky,
Tennessee, and North Carolina).

Region V. (Includes States of
South Carolina, Georgia,
Alabama, and Florida).

Region VI. (States of Arkansas,
Mississippi and Louisiana).

Region VII. (Includes States of
North Dakota, South Dakota,
Nebraska, and Kansas).

Region VIII. (Includes parts of
States of Texas and Oklahoma).

Region IX. (Includes States of
California, Nevada, Utah, and
Arizona).

Region X. (Includes States of
Wyoming and Montana and
part of Colorado).

Resettlement Administration (Continued)

Mr. H. E. Selby, Chief,
Land Use Planning Section,
Resettlement Administration,
Portland, Oregon.

Mr. J. C. Foster, Chief,
Land Use Planning Section,
Resettlement Administration,
Amarillo, Texas.

Region XI. (Includes States of
Washington, Oregon, Idaho, and
Alaska).

Region XII. (Includes States of
New Mexico and part of Colorado,
Texas, Oklahoma, and Kansas).

Weather Bureau:

See Weather Bureau Circular of October 1, 1936 entitled "Weather
Bureau Topics and Personnel, Assignments of Commissioned Officials and
Employees". (Separate cover).

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UNITED STATES DEPARTMENT OF AGRICULTURE

FLOOD CONTROL COORDINATING COMMITTEE

Room 2020

South Building

February 23, 1937

WATERSHEDS LISTED UNDER SECTION 6 FLOOD CONTROL ACT OF 1936

- | | |
|--|---|
| 1. Androscoggin River, Maine | 35. Canisteo (Sanisto) River, New York |
| 2. Kennebec River, Maine | 36. Cattaraugus Creek, N.Y. |
| 3. Penobscot River, Maine | 37. Cayuga Lake, New York |
| 4. Saco River, Maine | 38. Chemung River, New York |
| 5. Passumpsic River, Vermont | 39. Chenango River, New York |
| 6. Winooski River, Vermont | 40. Cohocton River, New York |
| 7. Dog River, Vermont | |
| 8. West River, Vermont, between
Weston and Brattleboro | 41. Delaware River, New York |
| | 42. Keuka Lake, New York |
| 9. Merrimack River, Mass. and N.H. | 43. New Creek, New York |
| 10. Connecticut River, Mass. N. H.
Vermont and Connecticut | 44. Onondaga Creek, New York |
| | 45. Seneca Creek, New York |
| 11. Big Black River, Mississippi | 46. Susquehanna River, N.Y. & Pa. |
| 12. Blackstone River, Mass. and R.I. | 47. Tioghniga River, New York |
| 13. Seekonk River, R. I. | 48. Tioga River, New York |
| 14. Woonasquatucket River and trib.
Rhode Island | 49. Genesee River, New York |
| 15. Moshassuk River & trib. R.I. | 50. Passaic River, New Jersey |
| | 51. Allegheny and Susquehanna Rivers,
Pa. - tributaries, sources,
and headwaters. |
| 16. Birch Creek, New York | 52. Delaware R. Tinicum Township, Pa. |
| 17. Bushnelville Creek, New York | 53. Lackawanna River, Pa. |
| 18. Beaverkill Creek, New York | 54. Potomac River and tributaries |
| 19. Beaverkill River, Sullivan Co., N.Y. | |
| 20. Catskill Creek, Green Co., N.Y. | 55. Salyersville Licking River near
Magoffin County, Ky. |
| 21. Delaware River, East Branch,
Sullivan County, New York | 56. The Big Sandy and trib. Ky. |
| 22. Moose and Black Rivers, N.Y. | 57. The Licking River and trib. Ky. |
| 23. Esopus Creek, N.Y. | 58. Mud River and Wolfe Creek, Ky. |
| 24. Lackawack River, Sullivan Co., N.Y. | 59. Rough River and trib. Ky. |
| 25. Neversink Creek, Ulster Co., N.Y. | 60. Nolin River and trib. Ky. |
| 26. Neversink River, Sullivan Co., N.Y. | |
| 27. Oswego, Oneida, Seneca, and Clyde
Rivers, New York | 61. Marshy Hope Creek, Maryland |
| 28. Rondout Creek, Ulster Co., N.Y. | 62. Patuxent R. and trib., Maryland |
| 29. Sawkill Creek, Ulster Co., N.Y. | 63. James River, Virginia |
| 30. Schoharie Creek, Green Co., N.Y. | |
| | 64. Contentnea Creek, North Carolina |
| 31. Schoharie Creek and tributaries,
Schoharie County, New York | 65. Drum Inlet, North Carolina |
| 32. Woodland Creek, New York | |
| 33. Warner Bushkill Creek, New York | 66. Edisto River and trib., S.C. |
| 34. Willowemoc River, Sullivan Co., N.Y. | 67. Great Pee Dee, Lynches, Little
Pee Dee, & Waccamaw Rivers, S.C. |
| | 68. Congaree, Wateree, Santee, and
Cooper Rivers, South Carolina |

69. Coosa River and trib., Ga.
70. Altamaha River, Ga.
71. Savannah River, Ga.
72. Ogeechee River, Ga.
73. Pearl River, Mississippi
74. Hillsboro River, Fla.
75. Intracoastal Waterway throughout Broward County, Fla.
76. Withlacoochee River, Fla.
77. Paint Rock River, Ala.
78. Coosa River and trib. Ga. & Ala.
79. Cataco Creek and branches, Morgan County, Alabama
80. Flint River, Ala. and Tenn.
81. Flint Creek and its branches, Morgan County, Alabama
82. Mermentau River, La.
83. Buffalo Bayou, Texas
84. Leon River, Texas
85. Trinity River, Texas
86. Sulphur River, Texas
87. Neches River and trib. Texas
88. Pease R. and trib. Texas
89. Nueces R. and trib. Texas
90. Colorado River, Texas, above the county line between Coke and Runnels Counties.
91. Sabine River, Texas
92. Lower Colorado River, Texas
93. Caddo Lake Dam and Jefferson-Shreveport Waterway, La. and Texas
94. Arkansas R. and Fourche Bayou, vicinity of Little Rock and North Little Rock, Ark.
95. Point Remove Creek, Ark.
96. Big Mulbury Creek, Ark.
97. Cossatot River, Ark.
98. Little River, Ark.
99. Petit Jean River, Ark.
100. Poteau River, Ark.
101. Little Missouri River, Ark.
102. Red River, Ark.
103. Sulphur River, Ark.
104. North Fabius River, Missouri
105. Salt River, Missouri
106. Weldon River, Missouri
107. Cow Creek, Kansas
108. Marais des Cygnes River, Kansas
109. Kansas City on Missouri and Kansas Rivers in Mo. and Kansas
110. Lawrence, North Lawrence and immediately contiguous area on Kans. R. Kansas
111. Morris County on Grand (Neosho) River, Kansas
112. Manhattan, Kansas
113. Marmaton River, Kan.
114. Republican River, Nebraska & Kan.
115. Smoky Hill River, Kansas
116. Big Blue River, an affluent of the Kansas R. and its trib. Kansas
117. Verdigris River, Kansas
118. Spoon River, Illinois
119. Souris River, North Dakota
120. Minnesota River, Minn.
121. Cannon River, Minn.
122. Crow River, Minn.
123. Rum River, Minn.
124. Roseau River, Minn.
125. Saint Louis River, Minn.
126. St. Croix R. Minn. and Wisc.
127. Mad River, Ohio
128. Youghiogheny River, Pa.
129. Cheat River and trib. West Va.
130. Greenbrier R. and trib. West Va.
131. Fond du Lac River and trib. Wis.
132. Fox River and trib. Wis.
133. Snake River and trib. Wyoming
134. North Platte R. and trib. Wyo.
135. Big Horn R. and trib. Wyo.
136. Green R. and trib. Wyo.
137. Belle Fourche R. and trib. Wyo.
138. Powder R. and trib. Wyoming
139. Saginaw River, Mich.
140. Sebawaing River, Mich.
141. Sandusky River, Ohio
142. Mad River at Springfield, Ohio
143. Apishapa River, Colorado
144. Purgatoire (Picket Wire) R. Colo.
145. Cuchara River, Colorado
146. Huerfano River, Colo.
147. Gila River and trib. above the San Carlos project diversion dam, Arizona and New Mexico
148. Dry Cimarron R. Union Co. New Mex.

149. Santa Cruz and Sonoita Rivers,
Santa Cruz County, Arizona
150. Sabino Canyon, Pima County, Ariz.
151. Lower Santa Cruz R., Pinal Co. Ariz.
152. Queen Creek, Ariz.
153. Hassayampa River, Ariz.
154. San Diego River, Calif.
155. Los Angeles R. and trib. Calif.
156. San Joaquin River from Herndon to
Antioch and its main east
side tributaries, Calif.
157. San Diego, San Luis Rey and Tia
Juana Rivers in San Diego County
158. Salinas River in Monterey County
159. Pajaro River in San Benito County
160. Eel and Mad Rivers in Humboldt Co.
161. Bear, Black Rascal and Mariposa Creeks
in Merced County, Calif.
162. American, Feather, Yuba, and Bear Rivers,
trib. of the Sacramento River
163. Sacramento and San Joaquin River
Valleys, Calif.
164. San Gabriel R. and trib. Calif.
165. Canal Creek, Calif.
166. Fahrens Creek, Calif.
167. Black Rascal Creek, Calif.
168. Bear Creek, Calif.
169. Miles Creek, Calif.
170. Owens Creek, Calif.
171. Duck Creek, Calif.
172. Mariposa Creek, Calif.
173. Little Deadmans Creek, Calif.
174. Big Deadmans Creek, Calif.
175. Burns Creek, Calif.
176. Ventura River, Calif.
177. Coos River and trib. Oregon
178. Coquille R. and trib. Oregon
179. Nehalem, Miami, Kilchis, Wilson,
Trask, and Tillamook Rivers,
Oregon
180. Nehalem R. and trib. Clatsop,
Columbia and Washington Counties
Oregon.
181. Rogue River and trib. Oregon
182. Siuslaw R. and trib. Oregon
183. Salmon River, Oregon
184. Siletz River and trib. Oregon
185. Umpqua River and trib. Oregon
186. Willamette River, Oregon
187. Yaquina R. and trib. Oregon
188. Cowlitz River and trib. Wash.
189. Chehalis R. and trib. Wash.
190. Columbia R. and trib. Wash.
191. Goldsborough Creek, Wash.
192. Lewis River and trib. Wash.
193. Skykomish River, Wash.
194. Snoqualmie River, Wash.
195. Snohomish River and trib. Wash.
196. Skagit R. and trib. Wash.
197. Green River, Wash.
198. Nooksac River, Wash.
199. Yakima R. and trib. Wash.
200. Stilaguamish River, Wash.
201. Nisqually River, Wash.
202. Cedar River, Wash.
- 203.
204. Duwamish River, Wash.
205. Sammamish River, Wash.
206. Walla Walla River and trib.
Wash.
207. Spokane River and trib. Idaho
208. Tanana River & Chena Slough,
Alaska
209. Lowell Creek, Alaska
210. Kenton Reservoir, Cimarron
River, Oklahoma
211. Eufaula Reservoir, Oklahoma
212. Pensacola Reservoir, Oklahoma
213. Markham Ferry Reservoir, Okla.
214. Fort Gibson Reservoir, Okla.
215. Wister Reservoir, Okla.
216. Oolagah Reservoir, Okla.
217. Braman Reservoir, Okla.
218. Mannford Reservoir, Okla.
219. South of Antwine, Levees on
Chikaskia River, Okla.
220. Tulsa and West Tulsa Levees
on Arkansas River, Okla.
221. Tenkiller Ferry Reservoir on
Illinois River, Okla.
222. Eagle Town Reservoir, Okla.

